

## Marketing Problems, Business Prospects Share Attention at NAC's Annual Meeting

### NPFI Starts Work On Control Project

#### Study to be Made of Sampling Procedures

WASHINGTON—Work has started on a statistically designed chemical control research project sponsored by the National Plant Food Institute, according to an announcement by the institute. Dr. Vincent Sauchelli, formerly of Davison Chemical Co., has joined the Institute staff to supervise the project (Croplife, page 18, Sept. 2).

A task force comprising representatives of state, federal and industrial chemical control personnel, along with two quality control statisticians, is handling the over-all project planning. George Swartz, Johns Hopkins University senior, has been named on a temporary basis to assist with the project in a Baltimore fertilizer manufacturing plant.

The primary purpose of the study is to determine whether current fertilizer sampling and analytical procedures are adequate in the light of modern manufacturing practices. It is hoped that the study will result in substantial savings to the fertilizer industry, which now "gives away" some \$5 to \$6 million annually in overages, according to the Institute.

The task force approved a statistically designed experiment for this purpose. The first phase consists in selecting 30 bags from each of the shipments of four 300-ton lots of four grades of fertilizers. The selection is

(Continued on page 21)

SPRING LAKE, N.J.—A discussion of marketing problems facing the industry, an appraisal of future business prospects, and the election of officers featured the first two days of the 24th annual meeting of the National Agricultural Chemicals Assn. at Spring Lake, N.J.

Speakers appearing on the program presented to the some 500 persons present the viewpoints of an economist, an executive of a large cooperative organization, and the

owner of a successful middle western farm supply firm. The final day of the convention featured a presentation by two Iowa State College sociologists who have made broad studies on what motivates and influences farmers to purchase different products of the chemical trade.

In his parting speech as president of the NAC, Fred W. Hatch outlined a number of association activities being undertaken to serve the changing character of the agricultural chemical industry and reviewed the

strengthened public relations program of the association.

"The agricultural chemical industry is going through a period of economic and technological adjustment," Mr. Hatch said, "and to varying degrees all segments of our business are being affected. I believe it can be safely stated that during the past two years it has been necessary both as an industry and as individual businesses to revise and expand many phases of our operations. Without a strong association supported by an outstandingly capable staff we would not have had an effective period of readjustment," the president declared.

Public relations, through a 35% increase in the association budget, have been expanded for promotional and protective activities, Mr. Hatch indicated. "We must implement an infinitely heavier program to inform both rural and urban people what pesticides do for them and that temporary inconveniences are sometimes far better than permanent losses. In the protective category all types of media afford us the opportunity of keeping the public informed as to the safe use of hazardous chemicals and to counteract the adverse publicity initiated by 'crack-pot' writers and other publicity seekers.

"After approximately two years of making adjustments required by the Miller legislation, our job is still unfinished and this remains one of our most important activities. Our product committees have completed the technical work required to satisfy Food & Drug Administration tolerances and conformance to the law also has demanded a detailed review of all registered labels by the U.S. Department of Agriculture and innumerable revisions by our member companies. After several years under the law it appears that both the government agencies and industry itself have been deviating from some of the procedures which were intended at the time the bill was drafted.

"We believe," Mr. Hatch said, "that the Miller amendment would work more satisfactorily for industry, agriculture and the govern-

(Continued on page 20)

### NAC Staff Report Reflects Accelerated Association Program, Industry Growth

SPRING LAKE, N.J.—A report by members of the Washington, D.C. staff of the National Agricultural Chemicals Assn. showed a greatly accelerated program is being conducted by the group. The report, presented by Lea S. Hitchner, executive secretary of the association; Miss Lee Grobe, assistant treasurer; Jack Dreessen, agronomist; Joseph A. Noone, technical advisor, and Donald Miller, public relations head, was made before the association's 24th annual meeting at the Essex and Sussex Hotel here.

Mr. Hitchner quoted some statistics to show the growth of the industry during the past years. The

sales volume of technical chemicals, he said, has risen from \$39 million in 1939 to \$250 million in 1956, an increase of 640%. During this same period, the chemical industry has risen 550% and fertilizer sales, 500%.

The secretary added that, with industry sales rising over the long term, the association is geared to "keep the road open for continued improvement and to promote that development."

The over-all aims of the association's program include (1) to create

(Continued on page 21)

### Steve Wise Buys Assets of Homar Agricultural Chemicals

WICHITA, KANSAS—Assets of Homar Agricultural Chemicals Co., in Wichita, have been purchased by Steve Wise, president of Steve Wise Co., Inc., here.

Assets and plant were bought from T. J. Morris, receiver of the Homar firm. Robert Wise, son of Steve Wise, has taken charge of the Homar division of the company.

Through the expansion, the Wise company will sell a complete line of insecticides and weed killers through 81 franchised dealers in Kansas, Missouri, Oklahoma and Nebraska.

Sales manager for the Homar division is John L. Sanders. The company will maintain its relationship with Philip H. Marvin, a Manhattan, Kansas, entomologist, who is a research consultant for the firm.

### Inside You'll Find

Insect, Plant Disease Notes	4
Over the Counter	9
What's New	10
Bug of the Week	16
Editorials	22
Meeting Memos	23
Index of Advertisers	23

## The World Fertilizer Situation And Future Farm Production

By WILHELM ANDERSON\*  
Foreign Agricultural Analysis Division  
Foreign Agricultural Service

Over the past 20 years, fertilizer consumption has increased remarkably throughout the world. Total world consumption, excluding the USSR and Communist China, has gone up from 8.4 million metric tons of combined nitrogen, phosphoric acid

and potash in 1938 to 19.6 million tons in 1956, an increase of 133%. The disruption of fertilizer production in Europe and Japan, caused by World War II, was largely overcome by 1950, and thereafter production greatly exceeded prewar.

The increase in fertilizer consumption on a percentage basis has been fairly widespread throughout the major areas of the world. But on a tonnage basis the distribution is very uneven, with 86% of the 11.2 million-ton increase accounted for by Europe, the U.S. and Japan.

How has increased fertilizer consumption affected world agricultural production? For the Free World as a whole it has helped production keep

(Continued on page 18)

\*EDITOR'S NOTE: The accompanying article by Mr. Anderson is from the August issue of Foreign Agriculture, a publication of the Foreign Agricultural Service, U.S. Department of Agriculture.



**GEORGIA DEALERS TOLD:**

# Fertilizer Has Key Role to Play in Meeting Challenge of Changing Farming Conditions

ATHENS, GA.—Georgia fertilizer and lime dealers were given a stiff refresher course Aug. 27-29 at the University of Georgia when they went back to school to review characteristics of Georgia soils, study soil testing and learn the response of plants to different fertilizer elements.

Sixty six salesmen attended the limited enrollment course and others were asking to take it when they received copies of the program and saw topics scheduled for discussion. Designed for Georgia salesmen, there were a few participants from South Carolina, Tennessee and Alabama.

The program opened with a discussion of such technical subjects as how Georgia soils were formed, the major soil series of Georgia, soil testing as a guide to better use of fertilizer and lime, how soils supply nutrients to plants, how plants absorb nutrient elements, how plants manufacture food, movement of nutrients and manufactured foods in plants, influence of environment on plant growth, importance of water in crop production and influence of soil reaction on plant nutrient availability. Students then moved into a more general discussion of how lime and fertilizer fit together in Georgia's changing agriculture and opportunities for obtaining more profits from efficient use of these materials.

They were told by J. W. Fanning, chairman of the Division of Agricultural Economics, University of Georgia, that successful farming depends upon how fully and wisely a farmer uses his basic resources. "This has always been true," he said, "and is no less so today. If anything, it is far more imperative under present day conditions. Fertilizer and lime contribute to increased productivity for more efficient use of basic land resources and thereby strengthen agriculture's position in our economy."

The economist predicted fertilizer and lime have a bright spot in Georgia's agricultural future. For them to make their finest contribution, he warned, they must pioneer in new territory and seek their position in new ways of farming and a different agriculture that is developing in the state.

In welcoming the salesmen, C. C. Murray, dean and coordinator of the College of Agriculture, pointed out that farmers throughout the country and particularly those in the Southeast are faced with the increasing difficulty of higher costs and lower returns. This situation, however, he said, is not hopeless except for those unwilling or unable to make necessary adjustments in production and marketing practices.

The dean, who is an agronomist by training, said that fertilizer is one of the most important factors of production in southern agriculture. The wise use of fertilizer and lime on both forage and row crops in Georgia can do much to stabilize production and increase returns to the farmer. "I believe this is an area in which the fertilizer industry and the College of Agriculture, working as a team, can continue to perform a real service to agriculture," Dean Murray said.

Dean Murray pointed out the meeting was designed to bring together fertilizer and lime dealers and the College of Agriculture staff for a brief period of broad but intensive training to help dealers do a better job of meeting fertilizer and lime needs of their customers, thus improving agriculture's economic position.

P. J. Bergeaux, agronomist of the

College Extension Service, said that Georgia farmers are using only about one half the recommended amounts of fertilizer and one third of the recommended rates of nitrogen. Approximately 300,000 tons of lime was used in Georgia in 1956 on crop land and improved pasture acreage, he continued. Soil test data, he said, indicate that over 50% of the soils in the state are acid and need lime. Research workers estimate a minimum of 2 million tons of lime are needed annually.

"It is evident that a vast gap exists between the amount of lime, fertilizer and nitrogen actually used in Georgia and that recommended by the College of Agriculture," Mr. Bergeaux said. "Education in the use of lime concerns the fertilizer salesman as much as it does the lime salesman. For a farmer to obtain maximum results from fertilizer, lime needs of the soil must be met first."

A total of 1,058,544 tons of mixed fertilizer was sold in Georgia in 1956, and if farmers had followed recommended rates 1,878,000 tons would have been used, Mr. Bergeaux said. "There is a potential market for almost twice the amount of mixed fertilizer as is now being sold."

According to county agents, he continued, 94,317 tons of actual nitrogen was used on the major crops and forage grown in Georgia in 1956. If farmers had followed recommended rates, they would have used approximately 223,000 tons of actual nitrogen.

Mr. Bergeaux said: "Many factors are responsible for the amounts of lime, mixed fertilizer, and nitrogen used by individual farmers. The most important of these are type of soil, weather conditions, amount of credit available and managerial ability of the farmer. However, research has proved and extension demonstrations have shown that adequate use of lime, mixed fertilizer and nitrogen on the major soil types of Georgia, when combined with other good management practices, will result in higher and more economical yields than the average Georgia farmer is now obtaining."

M. S. Williams, chief agricultural economist of the National Plant Food Institute, told the salesmen that "the big need is to get information on proper use of lime and fertilizer to the farmer in a form he can understand and use in view of his own situation and needs. This educational program requires the best efforts of all of us interested in agriculture. The fertilizer dealer is the key man. A farmer has confidence in you and will take your advice."

"With all of us working together—the college, the fertilizer industry, and related industries, we can help the farmer make more money by becoming more efficient through the use of improved practices including proper use of lime and fertilizer."

J. R. Johnson, extension agronomist and project leader, reviewed the many and varied ways in which members of the fertilizer industry are contributing to the extension service's educational work with Georgia farmers by providing demonstration materials and awards for outstanding farming.

He pointed out that Georgia's \$200 million farm fertility program is stimulating farmers, county agents and the fertilizer industry to put into effect the best fertilizer program in

the nation. This program has vast possibilities, he said, and can help Georgia's agriculture come into its own.

Dr. Russell Coleman, executive vice president of the National Plant Food Institute, who was the banquet speaker for the program, praised the American farmer as the best friend "Mrs. Consumer" ever had. He declared that if American farmers today were farming as they did in 1940 American consumers would be paying \$10 billion a more a year for food.

The short course was sponsored by the Georgia Plant Food Educational Society and conducted by the extension service and the experiment stations of the University of Georgia College of Agriculture.

## Merck Establishes Grants-in-Aid for Gibberellic Research

RAHWAY, N.J.—Merck & Co., Inc., Rahway, N.J., has established more than 30 new grants-in-aid at leading agricultural research centers to speed up investigative work on gibberellic acid, the firm announced Sept. 3.

The program, which supplements the company's own research, consists of funds, technical material and commercial-type formulations. Nearly 1,000 scientists are engaged in various projects to broaden the present base of knowledge about the plant-growth stimulant.

Merck said it established the grants throughout the country because of variations in growing conditions and the need for specific knowledge upon which recognized agricultural scientists in the different states can base practical recommendations.

The program has paid off in a fund of information which, it is expected, will shortly find application on the farm, according to the firm. Research on gibberellins to date by scientists at both agricultural universities and at Merck, which makes the product under the name "Gibrel," indicates that it may help farmers and gardeners in three ways on certain crops: making seeds emerge sooner, promoting faster seedling growth and increasing vegetative growth.

## Exhibits Welcome at New Mexico Exposition

ROS WELL, N.M.—Farm chemical exhibits will be welcome at the Second Annual New Mexico Irrigation Exposition to be held Dec. 5 at the Eastern New Mexico Fairgrounds here. The program, sponsored by the New Mexico Inter-Industry Electric Council, will feature lectures by nationally-known specialists in soil and water conservation, crop production and management, and water application; exhibitions of the latest farming equipment and supplies, pumps and rural sanitation equipment; and educational displays on soil conservation and farm management.

Firms interested in exhibit space should contact the co-chairmen, Al W. Woodburn, Chaves County extension agent, and William Harr, manager of the Southwest Public Service Co. Both are located in Roswell.

## Merger Approved

CLEVELAND—Stockholders of the Dobeckmun Co., Cleveland, manufacturer of flexible packaging, gift wraps and metallic yarns, have approved merging the firm with the Dow Chemical Co. The approval vote was announced by Thomas F. Dolan, Dobeckmun president. Directors of both firms had previously approved the merger proposal. Under the merger terms, assets and business of Dobeckmun have been transferred to Dow and Dow has assumed all Dobeckmun liabilities.

## Spencer Sales Reach Record High; Net Income Decreases

KANSAS CITY—Total sales Spencer Chemical Co. in the fiscal year ended last June 30 were \$4,262,634, the largest on record, the company announced Sept. 4. Sales the previous fiscal year amounted to \$45,624,949.

Net income for the 1956-57 fiscal year totaled \$5,130,791, equal to \$4.13 a common share, after preferred dividends, compared with the record profits of \$5,924,485, or \$4.73 a common share, a year earlier.

The company said that gains in the sales and profits from polyethylene were not sufficient to offset the adverse effect of nitrogen price adjustments on net income.

In the report to shareholders, Kenneth A. Spencer, president, stated that polyethylene sales accounted for nearly 28% of the year's volume. A better balance between supply and demand for nitrogen products currently exists, resulting in a more stable price situation, he said. Mr. Spencer reported agricultural chemical sales during the year had been severely affected by lower realization resulting from increased competition and curtailed demand because of drought conditions.

A new urea unit, now in operation and a new nylon molding powder production unit should make a contribution to earnings this year, the annual report pointed out. "The outlook for the current year in all the company's product lines is quite satisfactory," Mr. Spencer said.

Spencer Chemical continued to add to its facilities during the year, as gross additions were about \$4,500,000 which included expansion of formaldehyde capacity at Chicago and construction of the urea unit at Vicksburg, Miss., the nylon facility at Henderson, Ky., and a research center at Kansas City. To complete the capital projects currently underway, principally the polyethylene expansion and the new urea unit at Henderson, about \$7,800,000 will be expended.

The company's cash and working capital, Mr. Spencer said, are adequate to finance the new projects already approved as well as other under active consideration. Working capital June 30 amounted to \$22,843,341, compared with \$21,861,856 a year before. Cash and government securities were about \$21,468,000, with total current liabilities of \$8,319,000.

The company expects to spend about \$2,900,000 on research and development and related programs during the current fiscal year.

## Joins Olin Mathieson

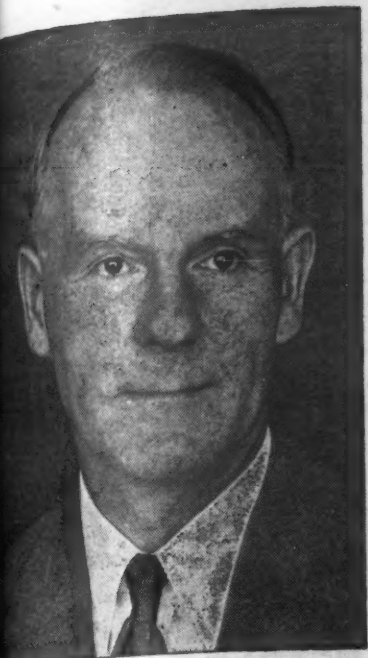
NEW YORK—Clarke B. Ash has joined the public relations department of Olin Mathieson Chemical Corp. as assistant publicity manager. He was announced by Hunter, director of public relations.

For the past five years Mr. Ash has been news bureau manager at Columbia Gas System, Inc. Previously he was a reporter for the Dayton (Ohio) Daily News. He is a graduate of the University of Dayton. Mr. Ash will work with the corporation's industrial chemicals, agricultural chemicals and high energy fuels operations. He will report to Kenneth Baker, publicity manager, chemical division.

## Potash Studies

COLUMBIA, S.C.—In studies the effect of potash on cotton, high yield was obtained from 60 lb. of potash per acre, W. R. Paden and J. Riley of Sandhill Experiment Station have reported. Half of the potash was applied before planting, and the other half at chopping time. When potash was increased from 15 lb. per acre to 60 lb., yield of cotton increased 15% per acre.





E. C. Perrine

**SAFETY SPEAKER**—E. C. Perrine, Nitrogen Division, Allied Chemical & Dye Corp., New York, will be one of the speakers at the meeting of the Fertilizer Section, National Safety Congress in Chicago Oct. 21-22. Mr. Perrine will speak on "Using Acids and Nitrogen Solutions Without Hazard—Carelessness Can Be Costly" at the Oct. 22 session.

### Cotton Mechanization Conference Planned

SHREVEPORT, LA. — Factors involved in expanding the markets for cotton to at least 20 million bales will be discussed at the Beltwide Cotton Mechanization Conference here Oct. 2-4. Opening speaker for the conference is Lamar Fleming, Jr., chairman of the board of Anderson, Clayton & Co. of Houston. Mr. Fleming will analyze means of expanding cotton markets.

The role of public research in achieving a 20-million-bale market will be discussed by Dr. Coyt T. Wilton, associate director, Alabama Experiment Station System, Auburn. He will examine the potentials for reducing production costs and improving cotton quality, and some of the factors involved in attaining an adequate research program for cotton.

R. S. Stevenson, president of the Allis-Chalmers Manufacturing Co., will speak on the role of the farm equipment industry in achieving a 20-million-bale market. He is chairman of the executive committee, Farm Equipment Institute.

The dollar value of using the latest production practices will be analyzed by H. C. Sanders, director, Louisiana Extension Service, Baton Rouge. He will tell of plans to help shorten the time required to get new information of production practices into actual use.

Rounding out the picture will be a banquet address by Ed Lipscomb, director of sales promotion and public relations, National Cotton Council, describing the role of promotion in expanding cotton markets.

The conference is being sponsored by the National Cotton Council in cooperation with Louisiana State University and other land-grant colleges, farm equipment industry, U.S. Department of Agriculture and other groups.

### CROP POSSIBILITY

GENEVA, N.Y.—There is a possibility that elderberries may come out of the wild and become a commercial crop in New York state. "If the demand continues and if satisfactory cultural methods can be devised, the growing of elderberries under cultivation could be extended," says Roger Way, Cornell and New York State University pomologist. He said that in western New York and Pennsylvania about 2,500 tons of elderberries are processed annually for jellies and

## Oregon Establishes Safety Regulations for Agricultural Ammonia

PORTLAND, ORE. — Agricultural ammonia has become subject to safety regulations under a newly amended Oregon boiler and pressure vessel law, according to the State Bureau of Labor.

Users and owners of anhydrous ammonia pressure vessels have been advised it is their duty to report locations of such vessels to the labor bureau so they may be checked.

Frank M. Smith, chief boiler inspector, said complete inspection of anhydrous vessels will begin within a short time. Applicator tanks and storage vessels will be governed by the new safety regulations.

Copies of the new safety regulations will be available at the state labor office after September 15. Standards disapprove the use of liquid petroleum gas equipment for anhy-

drous ammonia and set up protections for the public as well as the users and operators.

Bulk storage plants are required to have safety valve vent lines and diffusers that discharge any escaping vapor away from buildings. Users of tank equipment will be required to have accessible gas masks and other protective equipment, Mr. Smith said.

### CONSERVATION PROGRAM

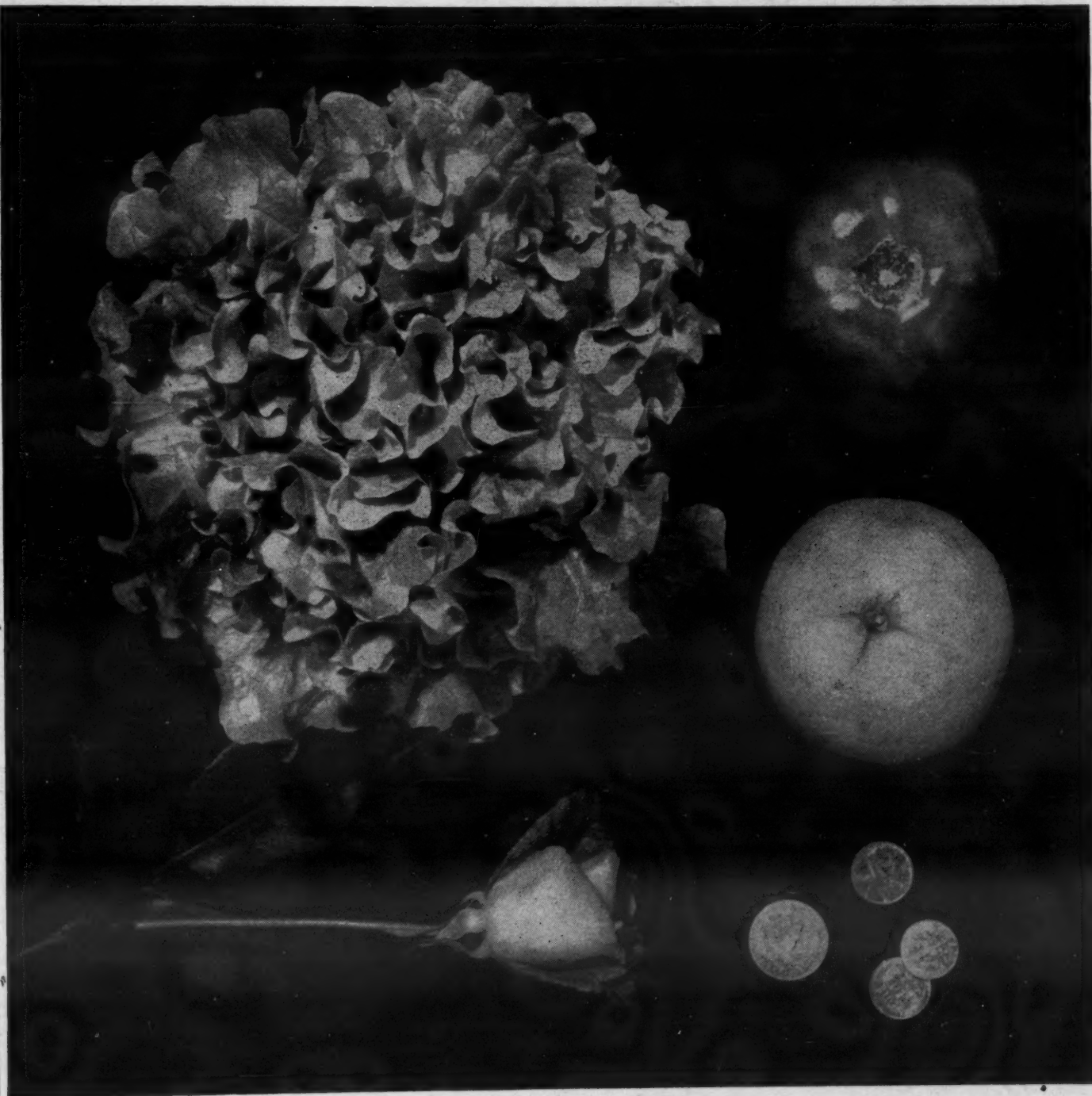
BLACKSBURG, VA.—Around 25,600 Virginia farmers carried out conservation practices through the 1956 Agricultural Conservation Program. H. Ryland Heflin of Ruby, chairman of the Virginia State Agricultural Stabilization and Conservation (ASC) Committee, says preliminary reports show these farmers received \$4,578,400 in federal cost-sharing while the rest of the cost was paid with their own funds, labor, materials or equipment. The federal government pays about half of the cost of conservation practices in Virginia.

## Oklahoma Dealers' Meeting Scheduled

STILLWATER, OKLA.—The 1957 Oklahoma Fertilizer Dealers' Conference will be held Nov. 25 at Oklahoma State University here. The Oklahoma Soils and Crops Conference will be held here Nov. 26.

### OREGON FIELD DAY

CORVALLIS, ORE.—New research findings aimed at lowering costs of growing corn in western Oregon will go on display Sept. 17 at a public corn field day at Oregon State College. R. E. Fore, agronomist in charge of the field day, says the program will start at 2 p.m. at the college's experimental farm, one mile east of the Van Buren street bridge, Corvallis. Highlight of the program will be weed control results with Simazin. Plantings of several corn varieties, rates of planting in relation to fertilization and weed control results with other chemicals also will be seen.



## Sales grow better, too, on Versenol Iron Chelate

Many of your fertilizer customers already know the green, growing difference Versenol® Iron Chelate makes. They've discovered it themselves, by mixing Versenol with their regular fertilizers.

Now you can put your specialty fertilizers on a preferred basis with these customers... by including Versenol right in your formula.

Just small amounts of Versenol can build a big preference for your brand with citrus growers, truck gardeners, nurserymen, commercial flower growers and home gardeners. Customers

are quick to notice how Versenol helps plants turn and stay a healthy, rich green... improves growth... enhances bloom.

It's simple to give your customers the extra convenience of having this extra iron for new growing power right in their fertilizer. Dow will be glad to show you how easily you can include Versenol Iron Chelate in liquid fertilizers, how you can mix Versenol Iron Chelate on Vermiculite with dry fertilizers. Get latest literature and complete information by writing to: THE DOW CHEMICAL COMPANY, Agricultural Chemical Sales Dept., Midland, Michigan.

YOU CAN DEPEND ON

**DOW**



## INSECT AND PLANT DISEASE NOTES

### Corn Earworms Cause Damage in Virginia

BLACKSBURG, VA.—Corn earworms are damaging soybean fields in southeastern and eastern parts of Virginia. The earworms are also causing trouble in grain, sorghum, peanuts, and in some cases, corn, in many parts of the state.—Arthur P. Morris.

### Fall Armyworm Still Serious in Illinois

URBANA, ILL.—The fall armyworm continues to be a serious problem on field corn in the southern third of Illinois and on really late corn everywhere.

Damage is quite severe on corn that has not yet tasseled; many fields are approaching 100% infestation. Eggs

are being laid on this corn, some fields having as many as 12 egg masses per 100 plants. On the average, each egg mass contains 150 eggs. On corn in fresh silk, infestations range from 4 to 50%. Most of the worms are still small and feeding on the silk itself. However, a few half-grown and full-grown worms were found feeding down on the developing ear shoot. On corn in the dry-silk stage, infestations range from 0 to 20%. No egg masses were found on corn of this maturity. However, another insect, the corn earworm, can be found feeding in the silks and ear tips in many of these fields.

As more and more corn reaches the dry-silk stage, armyworm moths may begin to select other crops like alfalfa, grasses and soybeans on which to lay their eggs. The incidence of parasitism and disease among fall

armyworms is increasing steadily. These natural enemies may soon begin to help hold populations in check.

The spotted alfalfa aphid is building up to damaging numbers in a few fields in southwestern Illinois. It is present throughout southern Illinois and up the Mississippi Valley at least as far as Hancock County. However, with continued dry weather, its increase and spread from now on could be rapid. About 10% of the existing population is in the winged stage and capable of migration. New seedlings are likely to be most seriously affected.—Steve Moore.

### Cotton Insect Damage Lessens in Arizona

PHOENIX, ARIZ.—Cotton dusting and spraying were prevalent all over Maricopa County as well as many other parts of Arizona during the past week. Cotton harvest continued in most parts of the state and some fields that were bottom defoliated earlier are showing a regrowth. How-

ever, a noticeable increase in grade was seen in the cotton harvested from these defoliated fields.

The cotton leaf perforator and looper populations seem to be on a decrease in Pinal County. The loopers have been fairly well controlled by virus. Cotton bollworm moths and eggs were very numerous in many fields during the past week. In fact, their abundance was greater than any time during the summer. Lygids continue to be a problem especially in some fields that were planted rather late.

Cotton leaf perforator infestations are very heavy in the Wellton-Pala area. Lygus populations are still high in some fields and controls will be necessary.

The cotton leaf worm is still a potential threat in Greenlee County. J. N. Roney.

### Hessian Fly Numbers Increase in Missouri

COLUMBIA, MO.—The summer Hessian fly survey has been completed. In general, fly numbers are still relatively low over Missouri, though in a few counties—such as Lincoln, Franklin, Perry, Cape Girardeau, and Scott—counts are high enough to indicate the possibility of damage next year.

For the past several years, Hessian fly numbers have been gradually increasing over most of the state. This increase has been slow and in most areas numbers are not yet high enough to be of real concern. But with this increase in numbers, there has been evident a gradual increase in fly damage. Both fly numbers and damage are apt to continue to increase as long as farmers generally ignore the fly-free seeding date on wheat.

Over most of the state, sorghum heads are still not being damaged to any great extent by either earworms or fall armyworms. Only in sections of the bootheel has severe damage been noticed.

Apparently the large acreage of late corn is helping this situation. It looks as though both worms prefer to lay their eggs on silking corn rather than on sorghum heads. There is always the possibility, however, that as soon as corn quits silking, the worms will turn to sorghum.

Spotted alfalfa aphids have started building up over most of the state during the dry weather. If dry weather continues, the aphids will continue to increase just as they did last year. Damage could begin to show up with in the next several weeks if it stays dry.—Stirling Kyd and George Thomas.

### Plant Lice Attack Ohio Corn, Sorghum

COLUMBUS—The corn leaf aphid has been very abundant this summer on both corn and sorghum in Ohio. These plant lice are usually a minor problem in Ohio, but factors favoring their development were apparent present this year. They often increase to tremendous numbers within a short time and also disappear equally fast due to work of predators and parasites.

The aphids have disappeared from many southern and central Ohio fields without treatment, whereas northern Ohio spraying has been necessary in some areas. The lack of rain in these areas has apparently accentuated the damage done by the aphids.

Fall armyworms are damaging very late plantings of both field corn and sweet corn. Corn and other grasses are the preferred food, but they may attack a wide number of plants. In corn it has caused severe damage to the whole area, particularly when the tassels have not yet emerged.

Grubs are often responsible for the dead, brown areas in lawns. They may be either the larvae of Japanese

## E. L. Hassell of Gibraltar Floors listens to . . .

**Raymond**  
THE  
MULTIWALL MAN

*boast about quality  
production control*



E. L. Hassell, General Manager of Gibraltar Floors, Inc., manufacturers of Dry Mix Concrete, Detroit, Michigan.

Quality Control by Raymond means constant supervision during production to make sure every detail of your order is carried out exactly. Quality controlled multiwalls "pay off" in your plant...ask your Raymond Representative.

*Some of the Raymond Bag Representatives at Your Service*



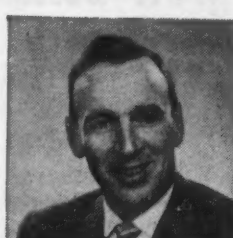
A. P. WOLFF  
Detroit, Mich.



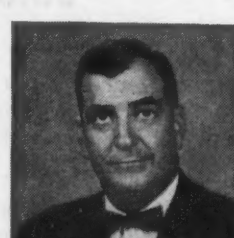
J. J. GREENE  
Louisville, Ky.



S. G. SHETTER  
Middletown, Ohio



M. F. KEANE  
Cleveland, Ohio



C. L. STEMEN  
Charlotte, N. C.

**RAYMOND BAG CORPORATION**

Division of Albemarle Paper Mfg. Co.

MIDDLETOWN, OHIO

RICHMOND, VIRGINIA



etles, or June beetles. They feed on the roots of grasses and usually can be found there by removing the grass.

Horse flies and deer flies have been unusually abundant in Ohio this summer. Unfortunately, these flies are very difficult to control. The larvae or maggots live in moist soil usually in swamps, ponds, lakes, or streams.

Aphids or plant lice can be a problem in late summer as cooler weather turns. Various kinds of aphids attack turnips, broccoli, cauliflower, kale, and spinach.

Boxelder bugs frequently infest boxelder trees and are often reported in the fall clustered on the tree trunks. As they mature they leave the tree and seek shelter in the walls, buildings and other protected places where they pass the winter. When they enter homes they become a nuisance although they do not feed on household furnishings, buildings, or persons.—D. Lyle Goleman.

### Soybeans Damaged in South Carolina Infestation

CLEMSON, S.C.—The insect buildup in some soybean fields in South Carolina has reached the point in which insecticides should be used at once, W. N. Nettles, Clemson extension entomologist, declared last week.

Dr. Nettles reported that recent soybean insect surveys by county agents indicate the immediate need for application of recommended insecticides for corn earworm, looper and velvetbean caterpillar, stink bugs, blister beetles and Mexican bean beetles.

### Earworm Infestation Found in Maryland

COLLEGE PARK, MD.—Earworm infestation in sweet corn on the Eastern Shore is very heavy—29 fields have an average of 65% infestation. Loop beetles are lighter than might be expected with the heavy earworm damage. Leaf aphids are conspicuous in spots and fall armyworms are active in late fields.

Spider mite damage shows in a few soybean fields and mites are still active. A few thrips and green cloverworms are still present. Corn earworm may be expected to hurt the pods; heavy infestations in soybeans were reported at Norfolk, Va.

Pepper in Worcester County has had light infestations of aphids, some plants show sooty mold on fruit and leaves. Lady beetles seem to have taken care of the pests. Corn earworms are doing some damage to the fruit.

Large numbers of gray moths called Acrolophus were found emerging from brown pupa cases in lawns at Wheaton and Pocomoke. The grass was "brown with the cases." These came from grass-feeding larvae that spin webs on the soil surface. Apparently the damage is over.—T. L. Russell and Wallace C. Harding, Jr.

### Wisconsin Insect Damagers Subside

MADISON, WIS.—Corn earworm moths continued to be caught in blacklight traps but with no marked increase in flight activity. Numbers may increase with warmer temperatures. Retarded first brood corn earworm larvae were observed in small numbers in canning sweet corn about to be harvested but neither eggs nor larvae were found in corn with green silks in Dodge, Fond du Lac, Sheboygan or Winnebago counties.

In the above counties the European corn borer has progressed slightly during the past two weeks with the majority being in the fifth instar (last larval stage). Pupation was light and not likely to increase, but moths emerged for the second brood in Dodge County. It is expected second brood borer populations will be lower in this area than in southern and western counties where a greater

proportion of first brood larvae pupated and moth emergence was earlier.

Corn leaf aphid populations have dissipated and the major migration of winged adults to other hosts appears to have been completed.

Grasshopper populations, while higher than expected in several areas, have been checked in their feeding by cooler temperatures and precipitation. However, they are advanced enough in their development to withstand this adversity for awhile and will resume their activities under favorable conditions.

Exceptionally high six-spotted leafhopper populations this season have caused extensive damage by infecting lettuce, carrots and celery with the "aster-yellows" virus which this insect transmits as it feeds on these hosts.

Much lettuce acreage has been abandoned which was heavily infect-

ed (in many cases nearly 100%). Infestation of carrots in some Oconto County commercial acreage is about 96%, and it is estimated that there will be a tonnage reduction of about 50%. In addition to yield loss is the disagreeable flavor which accompanies infection.

### CATERPILLAR WARNING

ALBUQUERQUE, N.M.—Residents of southern New Mexico are being warned about white-lined sphinx caterpillars, which are unusually plentiful this year because of summer rainfall. John J. Durkin, extension entomologist at New Mexico A&M College, says that the brightly-colored worms are not considered as a major pest to crops, but he adds that they do cause damage to home gardens and commercial crops that happen to be in the path of their aimless migration. He says that most of the common garden insecticides sprayed or dusted on the worms or the plants in their path will kill them, not instantly but within 24 to 48 hours.

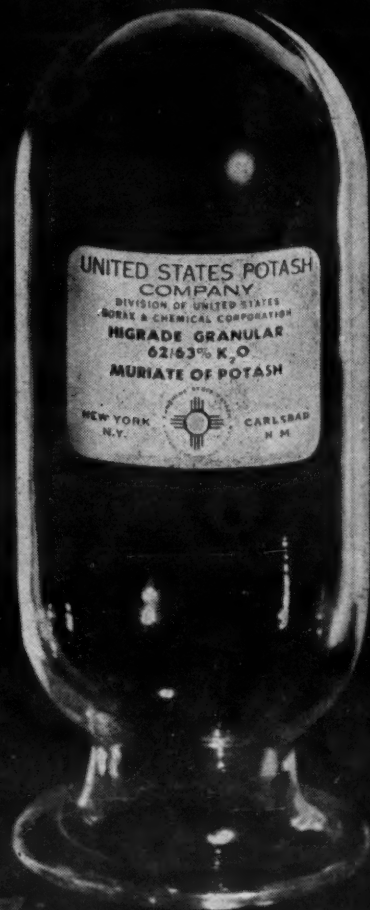
### Dr. K. P. Ewing Named to Advisory Post with Hercules

WILMINGTON, DEL. — Hercules Powder Co. has announced the appointment of Dr. K. P. Ewing, recently retired U.S. Department of Agriculture entomologist, to an advisory post with the company. Mr. Ewing's career in cotton insect control includes assignments at experimental stations in Texas and Louisiana since 1920.

After pioneering the early season cotton insect control program in Texas in the late 1940's, Dr. Ewing was made head of the cotton insect section of the USDA in 1953. He held this post until his recent retirement.

At Hercules, most of Dr. Ewing's efforts will be devoted to consulting with the company's entomological staff, but he expects also to devote some time to working with farm groups interested in cotton insect control, the company said.

## SPECIALLY SIZED FOR MODERN FERTILIZERS



## USP'S NEW HIGRAN

USP announces the FIRST Higrade Granular muriate of potash designed specifically for the manufacture of today's modern fertilizers. Its perfect whiteness attests to its purity—the highest now available in granular agricultural muriate of potash. Non-caking and free-flowing throughout, USP's new Higrade Granular potash contains 62/63%  $K_2O$ . A regular supply of this important new potash product is immediately available from the U.S. Potash Co.

USP also offers Higrade muriate of potash—62/63%  $K_2O$  and Granular muriate of potash—60%  $K_2O$ —both free-flowing and non-caking.

**UNITED STATES POTASH COMPANY**  
DIVISION OF UNITED STATES BORAX & CHEMICAL CORPORATION  
50 Rockefeller Plaza, New York 20, New York  
Southern Sales Office: Rhodes-Haverly Building, Atlanta, Georgia



REG. U.S. PAT. OFF.





**AT OHIO TOUR**—The above scenes are from the summer field tour of the Ohio Pesticide Institute. In the top photo are M. G. Farleman, center, Standard Oil Co., Cleveland, president of the institute, flanked by C. R. Nelswander, associate chairman of the Ohio State University entomology department, and H. C. Young, head of the botany and plant pathology department. Second from top shows Mr. Farleman and J. P. Slesman, Ohio Agricultural Experiment Station entomologist, inspecting sprayed cabbage. The third photo from the top shows the aerial spray demonstration held at the event. Below, C. R. Cutright, entomologist, discusses chemicals to control apple mites while part of the crowd of 100 sits in the foreground. A report of the tour appeared on page 1 of the Sept. 2 issue of Croplife.

#### BETTER ORCHARD GRASS

**RALEIGH, N.C.**—Potomac orchard grass has proved superior to other orchard grasses under a wide variety of conditions from the Tidewater area to the Mountains in North Carolina, according to North Carolina State

College. It has more rust resistance than others tested, including Virginia grown orchard grasses. Potomac matures several days later than Virginia grown orchard grass. Also, it has fewer seed heads. This makes Potomac better as a grazing plant.

### W. R. Ashburn Named President of Smith-Douglass Co.

**NORFOLK, VA.**—W. R. Ashburn, noted southern attorney before joining executive management of the Smith-Douglass Co. in 1953, was elected president and chief executive officer of the firm at the annual board of directors meeting late in July. Smith-Douglass owns Coronet Phosphate Co., producer of dicalcium phosphate.

Ralph B. Douglass, whom Mr. Ashburn succeeds, was named to the new office of chairman of the board, a position created at his request. Mr. Douglass reached retirement age last year.

Mr. Ashburn began practicing law in 1921 after graduation from the University of Virginia and, prior to joining Smith-Douglass in 1953, he served as the company's general counsel for a number of years. On Jan. 15, 1957, he was elected the company's senior vice president. Mr. Douglass joined the Smith-Douglass Co. in 1927 as vice president and has been president since the death of the founder, Oscar F. Smith, in 1950.

At the same meeting, the company's board of directors named J. T. Dineen a director. Mr. Dineen is a partner in Eberstadt & Co., New York investment firm. The board also declared a fourth quarter dividend of 30¢ a share on common stock, payable Aug. 20 to shareholders at the close of business July 26.

### Pesticides Control Seedling Corn Pests In Virginia Trials

Coating corn seed with pesticides has given excellent control of the seed corn maggot and fair control of light infestations of the corn root webworm in tests at the Chatham branch of the Virginia Polytechnic Institute Agricultural Experiment Station.

C. B. Dominick, assistant entomologist at the Chatham station, says the corn seed was coated with either dieldrin, aldrin, heptachlor or lindane, plus the fungicide captan.

On soil heavily infested with the corn root webworm, aldrin, heptachlor, or chlordane, mixed with the soil at 1 lb. per acre, effectively controlled this insect and resulted in an increase in yield of about 50% over the untreated checks.

Aldrin and heptachlor applied by the same method, at the rate of ½ lb. per acre, gave results similar to those shown by the 1-lb. rate where the infestation of corn root webworm was light.

Broadcast applications of granulated aldrin, heptachlor or chlordane at 2 lb. of the toxicant per acre gave excellent control of subterranean insects and also a marked reduction in the flea beetles which attack corn seedlings.

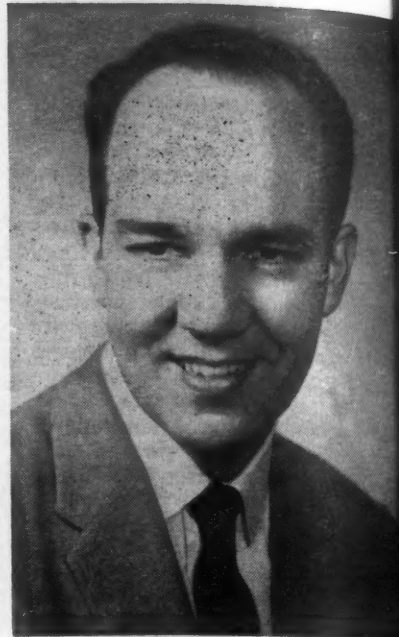
The seed corn maggot, southern corn rootworm, corn root webworm and wireworms are the most important soil-infesting insects which attack seedling corn in Virginia, Mr. Dominick says. These insects are a greater problem in Piedmont Virginia on the heavier soil types than on the lighter, sandy-soil types.

#### MOSQUITO CONTROL PROGRAM

**WOODRUFF, S.C.**—Town authorities here have begun a mosquito control program following receipt of a ton of insecticide dust.

#### IMPORTED FIRE ANT

**WASHINGTON**—The imported fire ant has infested an estimated 27 million acres of farmland in Georgia, Florida, Alabama, Louisiana, Mississippi, Arkansas, South Carolina and Texas, according to the U.S. Department of Agriculture.



George K. Nichols

### George K. Nichols Joins S. B. Penick

**NEW YORK**—George K. Nichols has been appointed a special sales representative for the agricultural chemical and insecticide division of S. B. Penick & Co., New York.

According to Frank Seeland, vice president and manager of the division, Mr. Nichols will represent the entire line of the division in the middle Atlantic states, particularly New York, New Jersey, Pennsylvania and Massachusetts.

Mr. Nichols, a graduate of Pennsylvania State University, was formerly a sales representative with State College (Pa.) Laboratories.

### Executive Promotions Announced by Diamond Alkali Co.

**CLEVELAND**—Promotion of executives of Diamond Alkali Co., Cleveland, to newly-created positions in the firm's national headquarters organization has been announced by James A. Hughes, vice president—administration.

C. R. Brown, for the past two years assistant works manager—employee and public relations at Diamond's Painesville, Ohio plant, is named director of labor relations. He will be responsible for coordinating hourly employee and union relations activities throughout the company.

Albert J. Ingley, manager of insurance since December, 1955, is now manager—employee benefits and salary administration. He will be responsible for Diamond's employee benefits program and salary administration on a company-wide basis.

Glenn H. Varney, who joined Diamond as assistant personnel manager in March, 1956, becomes manager—employee recruiting and management development, with responsibility for carrying on the company's employee recruitment, training and management development program.

Robert E. Frey, for the past six months assistant works manager—operations of Diamond's Painesville plant, is named to the newly created position of assistant works manager. The new post eliminates the positions formerly held by Mr. Brown and Mr. Frey.

### Farmers Pushing Red Shank Control

**COLUMBIA, S.C.**—Control of red shank weed is being pushed by county agricultural authorities in areas of lower Richland County where the pest has occurred.

R. W. Bailey, county agent, reports one farmer is experiencing good results by spraying ½ lb. of 2,4-D mixed with 90 lb. of liquid ammonium nitrate, plus a detergent, per acre. Weeds wilt within a few minutes and are soon dead, Mr. Bailey reports.

illage  
May Aff  
Content

WASHINGTON  
main nutrients  
may be influ  
ices, the U.S.  
culture reports  
This fact w  
operative feder  
department's  
service and t  
l Experiment  
were made to  
of subsurface  
with and wit  
percentage of  
corn, wheat a

The resear  
surface tillag  
ing—was usu  
slight decrea  
compared wi  
nutrient defi  
face tillage  
come by use  
searchers rep

In eastern  
Plains during  
are generally  
ble-mulch sy  
wet years or  
during the g  
yields are us  
ing. The chie  
mulching in  
Great Plains  
erosion, and  
but not consi

Test resul  
on plowed plo  
gen than on  
of tillage ha  
on phosphor  
magnesium  
There was l  
corn grain y  
tillage or f  
100 lb. 40-4

Wheat pla  
content of  
than subtil  
alone had  
wheat yield  
ments incre  
This increas  
subtilled plo

Subtillage  
on the nutri  
or straw. H  
to both plo  
increased th  
straw for b  
plots. Oat  
the same, i  
practice or

### South Ca Food Gro

LEESVILLE  
president of  
Food Educ  
nounced the  
of the socie  
Clemson, S.  
will open a  
close with  
Alfred S.  
urer, said t  
ers, dealers  
interested in  
agriculture  
Reservation  
made with

#### PILOT

LARNER  
34, of Lewi  
by the Erh  
was able to  
plane after  
ing insecti  
farm near  
to lose al  
effort to m  
tank, dipp  
ground. Th  
and the de  
estimated a  
a cut on h  
shoulder



## Tillage Practices May Affect Nutrient Content of Grain

WASHINGTON—Amounts of certain nutrients in corn, oats or wheat may be influenced by tillage practices, the U.S. Department of Agriculture reports.

This fact was brought out in cooperative federal-state studies by the department's Agricultural Research Service and the Nebraska Agricultural Experiment Station. The tests were made to determine the effects of subsurface tilling and plowing—with and without fertilizer—on the percentage of various nutrients in corn, wheat and oats.

The researchers found that subsurface tillage—or stubble mulching—was usually accompanied by a slight decrease in nutrient uptake, compared with plowing. However, nutrient deficiencies under subsurface tillage possibly may be overcome by use of fertilizers, the researchers reported.

In eastern areas of the Great Plains during dry years, crop yields are generally higher with the stubble-mulch system. However, during wet years or when rainfall is higher during the growing season, crop yields are usually higher with plowing. The chief advantage of stubble mulching in western areas of the Great Plains is the control of wind erosion, and yields are frequently—but not consistently—increased.

Test results indicated that corn on plowed plots contained more nitrogen than on subtilled plots. The type of tillage had no significant effect on phosphorus, potassium, calcium or magnesium amounts in corn plants. There was little or no difference in corn grain yield in these tests due to tillage or fertilizer (equivalent to 100 lb. 40-40-0 applied at planting). Wheat plants also had a higher content of nitrogen with plowing than subtilling. Tillage practices alone had very little influence on wheat yields, but fertilizer treatments increased them considerably. This increase was greatest on the subtilled plots.

Subtillage had no significant effect on the nutrient content of oat grain or straw. However, nitrogen applied to both plowed and subtilled plots increased the nitrogen content of the straw for both plowed and subtilled plots. Oat grain yields were about the same, regardless of the tillage practice or fertilizer application.

## South Carolina Plant Food Group to Meet

LEESVILLE, S.C.—J. N. Davis, president of the South Carolina Plant Food Educational Society, has announced the eighth annual convention of the society, at Clemson House, Clemson, S.C., Sept. 25. The meeting will open at 10 a.m. that day and close with an evening banquet.

Alfred S. Gramling, secretary-treasurer, said that fertilizer manufacturers, dealers, salesmen, and others interested in "greater achievements in agriculture" were invited to attend. Reservations for rooms should be made with the Clemson House.

## PILOT SURVIVES MISHAP

LARNED, KANSAS—Farold Fox, 34, of Lewis, Kansas, a pilot employed by the Erhart Crop Spraying Service, was able to walk away from his light plane after an accident while spraying insecticide on the Leonard Wurm farm near Belpre, Kansas. He began to lose altitude rapidly, and in an effort to miss smashing into an oil tank, dipped his right wing into the ground. The landing gear was smashed and the damage to the plane was estimated at \$1,500. Mr. Fox suffered a cut on his chin and burns from the shoulder harness he wore.

## California Fertilizer Sales Show Gain in First Half of 1957

SAN FRANCISCO—Sales of commercial fertilizers in California reached almost two-thirds of a million tons during the first six months of this year—and thus established new records. In 1956 for the first time, annual sales topped one million tons.

The increase over the first half of 1956 was roughly 4%, moving up from 639,377 tons to 663,484, according to a preliminary report of the Bureau of Chemistry of the California State Department of Agriculture.

Sales of ammonia solution 20-0-0 pushed up from 128,818 tons to 135,671 in the first six months of 1957, to reach almost within ounces the 1956 first half top seller, the mixed commercial dry fertilizer group, which dropped fractionally in sales from 136,874 to 135,815.

Remaining in third position for both periods was ammonium sulfate, up from 103,199 to 105,626 tons.

Two other important gains were registered by liquid mixed fertilizers, up more than 50% from 30,156 to 46,093 tons and now in fourth place; and ammonium nitrate solution 20-0-0, up from 6,241 tons to just under 15,000.

Actions of other fertilizers were irregular. Those moving upward include ammonium phosphate-sulfate 16-20-0, from 35,959 to 36,554; calcium nitrate, from 21,320 to 21,561; urea, from 13,976 to 15,666; ammonia-ammonium nitrate solution 40-0-0, from 4,953 to 5,379.

Those dropping fractionally include anhydrous ammonia, from 40,443 to 39,046; superphosphate normal, from 36,943 to 33,338; ammonium nitrate, from 21,208 to 29,807; and activated sewage sludge, from 12,184 to 11,476.

In the dry mixed fertilizer group, sales had improved between the two second quarters, almost making up for a small loss in the first quarters of the two years. Top seller during the period between April 1 and June 30 in both 1956 and 1957 was grade 10-10-10, rising from 7,684 tons to 8,084. Second place still went to 10-10-5 despite a drop from 7,004 to 6,535; and third place to 17-7-0 in spite of a decline from 6,089 to 4,581.

Greatest relative gain between the two second quarters was registered by 10-10-0, up from 882 tons to 2,385.

Sales of agricultural minerals were up slightly for the first half of the year, from 348,467 to 358,621 tons. Gypsum, dominating this industry, was up from 297,942 to 314,872, more than making up for scattered losses in all but a few other classes of minerals. Sewage sludge was down from 20,112 to 18,686; soil sulfur had dropped from 8,655 to 6,796; and calcium carbonate from 7,828 to 4,042.

## Leaf Worms Active in West Texas Cotton

LAMESA, TEXAS—Leaf worms are posing a threat to much of West Texas' cotton crop, according to a round-up survey made by several county agricultural agents. There are minor infestations of boll worms and cabbage loopers, but the leaf worms are giving the most trouble.

One reason for the heavy infestations, according to James Taylor, Howard County agent, is that the worms represent all stages of growth. There are big worms and little ones, while almost every field has large numbers of moths.

## Screwworm Plague

CHARLESTON, S.C.—A screwworm plague so bad that the larvae of the screwworm fly are attacking even domestic cats and dogs is reported here. The pest has also been a serious menace to livestock and wild deer in this coastal area.

## Program Set for California Forum

BAKERSFIELD, CAL.—The Central California Agricultural Forum will be held Sept. 11 at the Bakersfield Inn here. Speakers and topics will include:

"Castor Bean Defoliation," Al Hoffman, Pacific Oilseeds Corp.; "Castor Bean Harvesting," Don Suverkrop, Hopper Machine Works, Bakersfield, Cal.; "Folex, a New Defoliant," Dr. Lewis Goyette, Virginia-Carolina Chemical Corp.; "Def, a New Defoliant," O. B. Hitchcock, Chemagro Corp.; "Defoliants and Adjuvants," Robert Counts, University of California; "Integrating Biological and Chemical Control of Field Crop Insect Pests," Dr. Robert van den Bosch, University of California; "Integrating Biological and Chemical Control of the Spotted Alfalfa Aphid," Dr. Vernon M. Stern, University of California; "Old and New Miticides in Relation to Spider Mite Resistance

and Integrated Control," Dr. H. T. Reynolds, University of California; and "Mite Identification on Cotton—Field and Laboratory Techniques," Gordon L. Smith, University of California.

## SEED LAW CHANGES

GENEVA, N.Y.—Recent changes in the New York seed law provide that chemical and other beneficial treatments are now included among the labeling requirements for all seeds offered for sale in the state, Dr. Willard F. Crosier, Cornell and New York State University seed analyst, reports. "If the seed has received a chemical fungicide, insecticide, growth-promoting hormone, or bird repellent, or has been scarified to reduce the hard seed content, the label or tag must carry this information," he said. "Also, if the seed has received application of a substance harmful to humans or other vertebrates, an adequate warning must be provided."

# DURASET-20W

## Prevents Fruit Drop

## Assures Uniform Top Quality



**increases lima bean yield  
80% to 100%**

Discovered by our research teams, DURASET\*-20W, a new flower and fruit-setting hormone, was cooperatively developed with many state and federal experiment stations.

1. Increases yield—insures first pick
2. Gives more uniform bean maturity
3. Allows a continuous planting schedule
4. Insures continuous harvesting operations
5. Is easy to use

Tests on tomatoes, strawberries, peppers, apples and small seeded legumes show promising results with Duraset.

Order DURASET-20W from your local supplier today.  
Write, wire or phone us if unable to locate source of supply.

\*U. S. Patent No. 2,556,665



**United States Rubber**  
**Naugatuck Chemical Division**  
Naugatuck, Connecticut

producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spargon, Phygon, Aramite, Synklor, MH, Alanap, Duraset.



## Industry Patents and Trademarks

2,803,581

**Noninflammable Fumigant Mixture.** Patent issued Aug. 20, 1957, to James O. Hibbard, Kansas City, Mo., assignor to Research Products Co., Kansas City. A fumigant composition including as an active toxic ingredient, a mixture of carbon bisulphide in carbon tetrachloride with a substantial proportion of methylene chloride for reducing the flammability of the mixture.

2,804,371

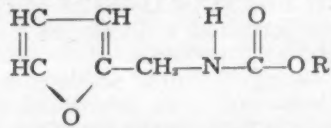
**Recovery of Potash Values from Brine.** Patent issued Aug. 27, 1957, to William B. Dancy and Albert Adams, Carlsbad, N.M., assignors to International Minerals & Chemical Corp. The process for recovering potash values from a brine containing essentially potassium chloride, sodium chloride and sulfate ions, and less

than about 3.5% magnesium ions, by weight, which comprises treating said brine at a temperature below about 80° C. and above the freezing point thereof with a calcium salt selected from the group consisting of calcium sulfate and calcium chloride, whereby syngenite ( $K_2SO_4 \cdot CaSO_4 \cdot H_2O$ ) forms as a solid phase, separating said syngenite from the reaction mixture, evaporating the mother liquor until sodium chloride is substantially precipitated, separating the precipitated sodium chloride, cooling the evaporated mother liquor to crystallize potassium chloride therefrom, and removing the solid phase potassium chloride from the cooled liquor.

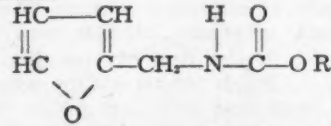
2,804,381

**Herbicides.** Patent issued Aug. 27, 1957, to John A. Garman, Baltimore,

Md., and Donald K. George, State College, Miss., assignors, by mesne assignments, to Food Machinery & Chemical Corp. As a new composition of matter, a carbamate represented by the structural formula:



wherein R is an alkyl radical having 1 to 6, incl., carbon atoms. The method of selectivity controlling plant growth comprising desired and undesired plant species, which comprises treating the plant growth with a carbamate represented by the structural formula:



wherein R is an alkyl radical having from 1 to 6, incl., carbon atoms, in an

amount and concentration which phytotoxic to the undesired plant growth and substantially harmless to the desired plant growth.

2,804,382

**Correction of Mineral Deficiency in Growing Plants with Manganese Oxide.** Patent issued Aug. 27, 1957, to Alexander A. Nikitin, College Park, and James K. Plummer, Atlanta, Ga., assignors to Tennessee Corp. The method of supplying manganese to plants growing in manganese-deficient soil which comprises supplying to the plant a manganese containing nutrient composition of which manganese content of which consists essentially of manganous oxide ( $MnO$ ).

## USDA Establishes Witchweed Quarantine in Carolina Areas

WASHINGTON—The U.S. Department of Agriculture has announced that one county, 14 localities and individual premises in North Carolina and South Carolina are regulated, effective Sept. 6, under a quarantine issued because of the presence of witchweed.

Areas in North Carolina include one locality in Robeson County; one locality in Bladen County; one locality, for farms and one commercial property in Columbus County; one locality in one farm in Cumberland County; one locality in Harnett County; one farm in Hoke County; six farms and one locality in Sampson County, and one farm and one locality in Scotland County. (Localities are areas with boundaries designated by USDA for quarantine purposes.)

South Carolina regulated areas comprise one farm in Darlington County; two localities in Dillon County; two localities and two farms each in Horry and Marion counties, and two localities in Marlboro County.

These areas include localities and farms proposed for regulation by USDA on July 12, plus other properties and localities that have been found infested with witchweed since that date.

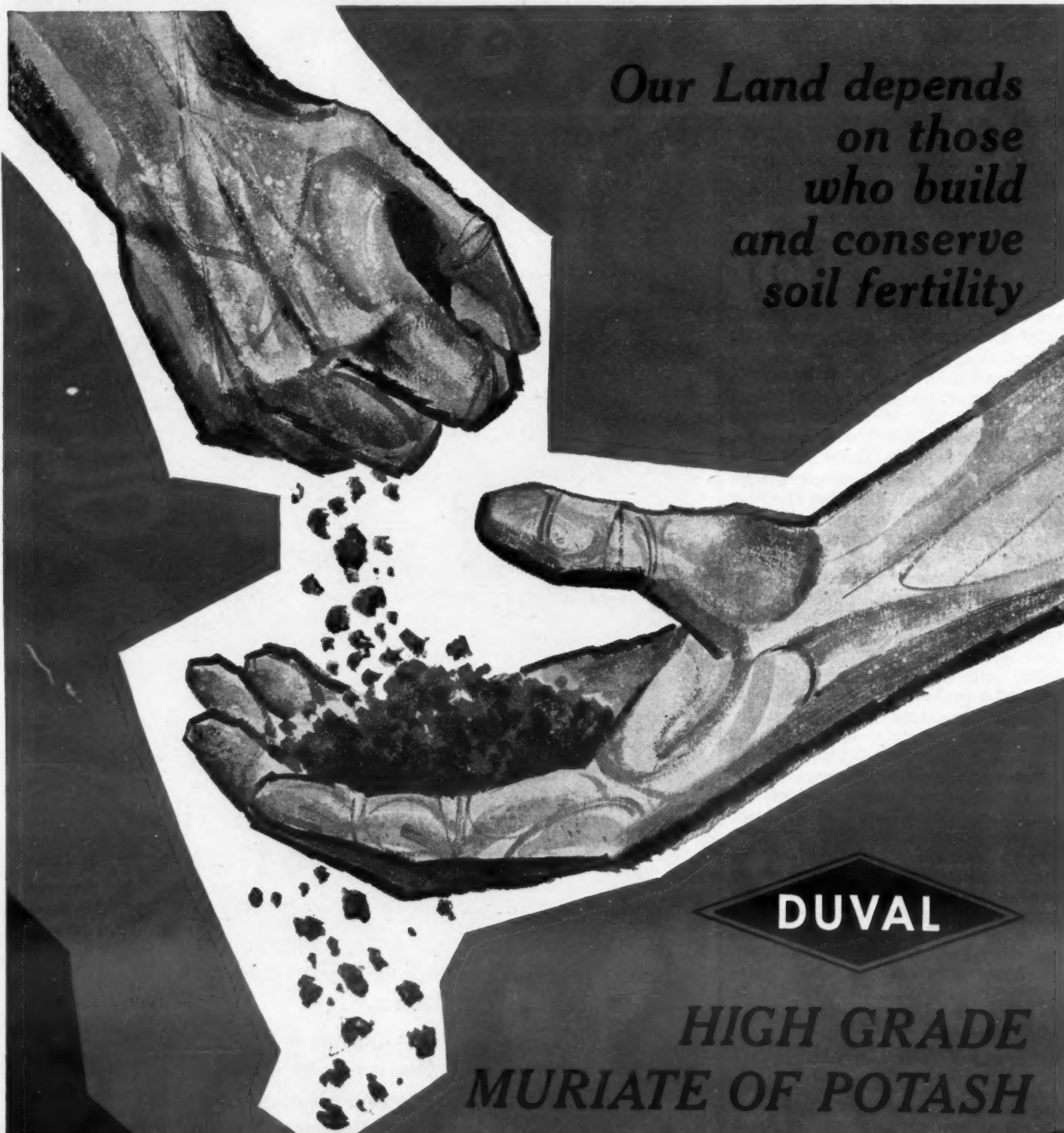
Articles subject to regulation when moved interstate from the regulated areas are: soil, nursery stock and other plants with roots attached, root crops, hay, straw, fodder and plant litter of any kind, seed cotton, tobacco, peanuts in shells, ear corn, soybeans, small grains, used farm tools and harvesting machinery, used construction and maintenance equipment, used farm products containers, and machinery, vehicles and other articles that might spread witchweed.

Provision is made in the regulations for the movement under certification or permit of regulated articles that have not been exposed to infestation by witchweed seed or that have been treated or that otherwise meet specified requirements.

Exemptions from the certification or permit requirements are provided for many articles when they are produced and handled under conditions which guard against spread of witchweed. Among the exemptions are: Root crops moving to a designated processing plant, or when washed free of soil and protected from reinfestation; seed cotton moving to a designated gin; certain tobacco destined for a designated warehouse or storage facility; soybeans and small grains for nonplanting purposes when they have not been in contact with the soil during harvesting and are destined for an approved mill or storage facility; and certain used farm equipment that has been cleaned by washing, air blasting or steam cleaning.

## CONSERVATION PROGRAMS

SPOKANE—Nearly 31,000 farmers and ranchers in Washington's 75 soil conservation districts cooperated in district programs involving more than 10½ million acres during the past year.



*Our Land depends  
on those  
who build  
and conserve  
soil fertility*

**DUVAL**

**HIGH GRADE  
MURIATE OF POTASH**

*will help do the job!*

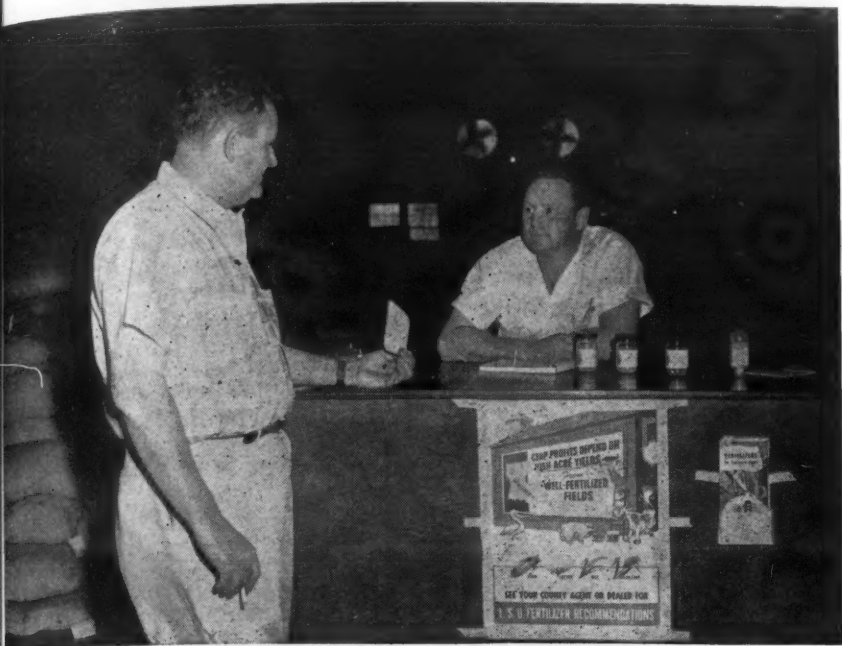
*High Analysis . . . Unsurpassed Service*

Address all communications to  
**ASHCRAFT-WILKINSON CO.**  
Exclusive Distributors  
**ATLANTA, GEORGIA**  
Cable Address: Ashcraft

**DUVAL SULPHUR  
and  
POTASH CO.**  
Modern Plant and Refinery at Carlsbad, New Mex.

Norfolk, Va. Charleston, S. C. Tampa, Fla. Jackson, Miss. Columbus, Ohio Montgomery, Ala. Des Moines, Iowa





**SAMPLES SELL**—Sample bottles filled with pelleted fertilizers help sell prospects, says E. C. Marler (behind counter) of the Louisiana Agricultural Cooperative, Inc., Alexandria. Talking fertilizer sales with Mr. Marler is an employee.

## Fertilizer Dealer Builds Sales To Lowland Farmers of Louisiana

By AL P. NELSON  
Croplife Special Writer

Down in the bayou country of Louisiana, where a heavy annual rainfall keeps the land wet a great part of the year, farmers are using a variety of fertilizers, and the Louisiana Agricultural Cooperative, Inc., Alexandria, is helping farmers get their land fertilized regardless of the weather.

The Louisiana Agricultural Cooperative, Inc. has five locations throughout the state. E. C. Marler, an aggressive merchandiser, is in charge of the Alexandria location, and he reports that farmers are using more fertilizer every year as they see the results that it can bring in greater crops.

This firm sells considerable anhydrous ammonia and will apply it for farmers at a rate of about \$1.50 per acre, states Mr. Marler. On the other hand, if the farmer wants to rent an applicator, he can do so, too, and do his own applying. But most farmers rely on the Louisiana Agricultural Cooperative, or custom applicators, to do the work.

Despite the wet ground, the firm is able to apply anhydrous ammonia from February through June and, in fall, it applies anhydrous ammonia mostly to pastures and oats. The current rate for anhydrous in Louisiana is \$6.50 per 100 lb. This figures out to about 8¢ per unit cost.

On corn, farmers use about 90 to 120 units of nitrogen per acre and about 40 to 60 units on cotton ground. Sugar cane applications run about 90 to 100 units, while pastures take about 40 units. Rice farmers are using about 60-70 units. Mr. Marler says that some truck farmers are using anhydrous, too, especially onion growers.

"We are selling quite a bit of anhydrous ammonia in this section," Mr. Marler says. "Farmers like the quick absorption of the gas into the soil and the quick growth that it stimulates. Of course, we have balanced dry fertilizer to sell along with the anhydrous, and we sell a great deal of it, too."

When a patch of land is too wet for

either anhydrous applications or the spreading of dry fertilizer, the farmer need not wait to fertilize until the land dries up. He can use his own airplane to spread pelleted fertilizer, which drops neatly into water patches, or he can hire pilots to spread the fertilizer. Pilots charge about \$3 per 100 lb. While this rate may seem high, the farmer nonetheless gets the fertilizer into the ground at a time when it will stimulate growth and help him produce a larger crop sooner than otherwise. Also, only the wet patches of ground, or those covered with a thin blanket of water, need to be fertilized by a plane dropping the pellets. The rest of the farm often can be handled through spreading of dry fertilizer and also through the using of anhydrous ammonia.

"Some farmers in this region are even having planes fertilize wet pastureland early in spring and late in fall," says Mr. Marler, "when they figure it is too wet to get in with vehicles. I think all this plane activity reveals how much the farmer values proper fertilization."

Mr. Marler says that the county agent and extension workers spread the gospel of good fertilization to farmers in many areas. These men are largely responsible for the quick way in which fertilizer is taking hold in the annual buying schedules of most farmers. Many of the farm meetings in the area stress fertilizer, and discussion brings out how to buy and use fertilizer, and how to spread it despite wet ground.

At the meetings, too, many of the farmers tell of their experiences using fertilizer—the rate of gain—and this testimony impresses many listeners.

The Louisiana Agricultural Cooperative, Inc., has two salesmen who are constantly visiting farmers in the region, selling fertilizer, dry and anhydrous, and also field seeds, as well as insecticides. These salesmen add

(Continued on page 18)

### SHOP TALK

## OVER THE COUNTER

By Emmet J. Hoffman  
Croplife Marketing Editor

Business activity in the U.S. was at record levels during 1956. Yet, during the same year, business failures were on the increase, according to Dun & Bradstreet.

Tables to follow show the over-all failure picture in 1956. It is not a happy one but farm supply dealers made a better showing than did many other business lines.

Decreases were noted in both the number of failures and creditors' losses for farm stores. During 1956, the number of liabilities in the line decreased 26% (31 in 1956 vs. 42 in 1955) and losses to creditors dropped 53% (\$634,000 in 1956 vs. \$1,359,000 in 1955). The average liability for each retailer of farm supplies that failed in 1956 was \$20,452.

Failures among retailers of garden supplies totaled 21, with a total loss to creditors of \$428,000. This represented an increase of 50% in numbers as compared to 1955's 14 failures and an increase of 124% in creditors' liabilities as compared to 1955's \$191,000. The average liability for each retailer of garden supplies that failed was \$30,129.

It should be remembered that the failures do not include those operators who liquidated voluntarily and paid whatever obligations were outstanding at the time they closed their doors. There is, of course, a great deal of such activity going on. Out of some 4,200,000 firms, some 350,000 to 400,000 firms discontinue business every year, according to Dun & Bradstreet. These firms are replaced by an equal or slightly higher number.

Summing up all the complex factors which cause a business to fail has its own hazards and limitations. Some reporters will evaluate and judge the factors more accurately than others, and the final analysis—however cold and exact the figures may look on paper—may contain some discrepancies.

Furthermore, the information needed to explain why a business failed is not always available after it has failed.

The credit reporter must, at times, play Monday morning quarterback.

The study that Dun & Bradstreet has done on the causes of failures among all businesses will indicate danger signals that retailers may use to check their operations. This is the study of the causes of failures that Dun & Bradstreet has done on the 12,686 business failures.

These figures however, account for only 7.8%, or 900 of the 12,686 business failures in 1956. Some of these failures could probably have been prevented through proper insurance. But even if you say these failures were caused by circumstances beyond human control or "Acts of God," they represent only a relatively small part of the whole failure picture.

Dun & Bradstreet tried to get at the real cause behind the other more than nine out of ten cases that could not be explained by obvious, outside circumstances. Here's the way the figures fell:

	%	Number
Incompetence .....	42.7	5,421
Unbalanced experience ...	18.2	2,306
Lack of managerial experience .....	17.1	2,171
Lack of experience in the line .....	13.3	1,687

This group was further analyzed by the surface cause, or the reason given as excuses, for the failure. Al-

(Continued on page 14)

### Classification of Causes of Business Failures in U.S. Total Year 1956

Based on Opinions of Informed Creditors and Information in Dun & Bradstreet's Credit Reports

Line of business—All.				Method of operation—All.			
No.	%	Underlying causes		Apparent causes	No.	%	
540	4.3	Neglect:	Due to	Bad habits	125	1.0	
				Poor health	318	2.5	
				Marital difficulties	62	0.5	
				Other	35	0.3	
266	2.1	Fraud:	On the part of the principals, reflected by	Misleading name	7	0.1	
				False financial statement	46	0.4	
				Premeditated overbuy	17	0.1	
				Irregular disposal of assets	169	1.3	
1687	13.3	Lack of experience in the line	Evidenced by inability to avoid conditions which resulted in:	Other	27	0.2	
2171	17.1	Lack of managerial experience		Inadequate sales	6079	47.9	
2306	18.2	Unbalanced experience*		Heavy operating expenses	892	7.0	
5421	42.7	Incompetence		Receivables difficulties	1129	8.9	
182	1.4	Disaster:	Some of these occurrences could have been provided against through insurance	Inventory difficulties	1000	7.9	
				Excessive fixed assets	837	6.6	
				Poor location	393	3.1	
				Competitive weakness	2692	21.2	
113	0.9	Reason unknown		Other	638	5.0	
12686	100.0	Total		Fire	84	0.6	
				Flood	30	0.2	
				Burglary	8	0.1	
				Employees' fraud	12	0.1	
				Strike	12	0.1	
				Other	36	0.3	

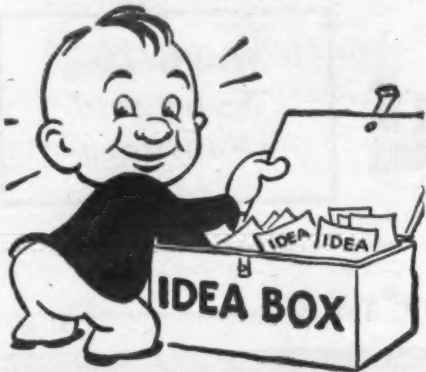
Because some failures are attributed to a combination of apparent causes, the totals of these columns exceed the totals of the corresponding columns on the left.

\*Experience not well rounded in sales, finance, purchasing and production on the part of an individual in case of a proprietorship or of two or more partners or officers constituting a management unit.

### Comparative Failure Trends

	Percentage change, 1955-56	Average liabilities per failure in 1956
Total businesses, all lines .....	Number + 16	\$44,356
Total manufacturing .....	+ 4	83,689
Total retailing .....	+ 19	24,609
Retailing feed and farm supplies .....	- 26	20,452
Retailing garden supplies .....	+ 50	20,381





## What's New...

### In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

#### No. 6626—Hydrocarbon Booklet

A new, illustrated, 20-page booklet which describes the properties and uses of five important chlorinated hydrocarbons has been published by the Stauffer Chemical Co. The publication contains complete technical data, e.g., typical analyses, solubilities, flash point and density tables and graphs, as well as other pertinent physical and chemical information, for perchlorethylene, trichlorethylene, carbon tetrachloride, methylene chloride and chloroform. One full section of the booklet sets forth optimum handling procedures and methods of minimizing waste. Check No. 6626 on the coupon and mail it to secure a copy without charge.

#### No. 6628—Pesticide Carrier

Zeolox 7A, the newest of the Zeolox products manufactured by the J. M. Huber Corp., is in commercial use as a pesticide carrier for concentrates and wettable powders. Advantages claimed are reduced production costs, cleaner-running mills, with fewer shut-downs and finer grinds. The company's announcement continues: "Zeolox 7A also provides quality improvement: Wettable powders such as DDT for WHO and GSA

specifications yield higher suspensions and higher re-suspensions after tropical storage. Surfactant levels can be minimized for additional economy, and the efficiency of the product allows use of substantial amounts of low-cost diluents such as kaolin clays." The product is a neutral material, chemically a hydrated silica and is virtually non-abrasive. The average particle diameter is 0.02 microns. The product is packed in 50-lb. multi-wall moisture-barrier valve bags and is available in carload and truckload quantities. Literature about the product may be secured by checking No. 6628 on the coupon and mailing it to Croplife.

#### No. 6627—Film

A 20-minute, 16 mm. sound movie has been produced by the Terra-Lite Division of Zonolite Co. for showing to firms marketing agricultural chemicals. Titled, "Vermiculite, Carrier for Agricultural Chemicals," the film details properties of vermiculite as a carrier for insecticides, pesticides, and weed killers. Production of vermiculite at company mines in South Carolina and Montana, and ag-chemical mixing techniques of the lightweight mineral are shown. Information about free showings may be secured by checking No. 6627 on the coupon and mailing it to Croplife.

#### No. 5797—Farm Canvassing Booklet

Don Ross, field merchandising manager for Successful Farming magazine, has written a booklet, "The Do's and Don'ts of Farm Canvassing," which provides hints on the art of selling successfully to the productive farm market. A copy is available without charge. Check No. 5797 on the coupon and mail it to this publication.

### Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

#### No. 5769—Portable Conveyors

The Chantland Manufacturing Co. announces improvements in three lines of its Elton portable conveyors. The conveyors are now equipped with new lifts which allow the receiving end to be adjustable from minimum height to 3 ft., 9 in. above the ground. Company officials say that this feature is ideal for loading or unloading trucks or freight cars or for use in conveyor lines. It also allows horizontal conveying at the desired height. Descriptive literature on this, and other features, is available. Check No. 5769 on the coupon and mail it to this publication.

#### No. 6619—Miticide

A technical service bulletin titled Chipman 6199, which is also the trade name of a miticide and scabicide, has been prepared by the Chipman Chemical Co., Inc. The bulletin describes the product's use on non-bearing citrus. The product is described as "a granular, non-dusty, organic phosphorus compound—readily soluble in water for spray applications." It contains a bright violet dye so that accidental spillage can be easily detected. Secure the bulletin by checking No. 6619 on the coupon and mailing it to Croplife.

#### No. 5757—Seed Treatment Booklet

"The Benefits of Modern Seed Treatment" is the title of a new 16-page booklet published by Panogen, Inc. According to the company, material in the booklet has been selected and checked by extension pathologists and is designed to be "easy to read and nontechnical." "Seed treatment benefits are sometimes misunderstood and many farmers do not recognize the crop benefits and profits involved," the company adds. Contents include sections on: When does it pay to treat seed?, history of seed treatment, how seed treatment works,

vapor action, reasons for treating wheat, oats, barley, flax, cotton and other crops, and how to treat seed. Nearly 50 photos are included. Secure the booklet by checking No. 5757 on the coupon and mailing it to this publication.

#### No. 5774—Equipment Catalog

The Burrows Equipment Co. has published its 1957-58 equipment catalog which describes, illustrates and prices some 1,000 different items of equipment used in the handling, storing, processing and marketing of feed, grain, seed and related materials. The 200-page catalog is available without charge. Check No. 5774 on the coupon and mail it to this publication.

#### No. 5770—Weighing Machine

A new automatic net weighing machine, designed for use in restricted overhead clearance areas, has been announced by the Exact Weight Scale Co. The machine consists of an even balance precision industrial scale, an air operated slide valve, a controller and remote control station. The remote control station permits the machine to be operated as a fully automatic or semi-automatic. The weighing



bucket (on the machine illustrated) is capable of holding 1,500 cu. in. of product. Various sizes of weigh hoppers are available. Secure details by checking No. 5770 on the coupon and mailing it to this publication.

#### No. 6620—Tank Brochure

The Chicago Steel-Tank Co. has prepared a 32-page color brochure describing its operations. The booklet is calculated to be of special interest to design engineering and other equipment buying persons in the process industries. Described in the booklet are all major fabricating equipment, capacities for thickness, length and width, tonnage, etc. Complete testing and shipping facilities are also fully explained. Check No. 6620 on the coupon and mail it to Croplife to receive the brochure.

#### No. 6622—Insect Control

A chart on home insect control has been prepared by the Real-Kill Co. division of the Cook Chemical Co. The chart is available without charge. Nineteen insects ordinarily found in the home are listed, together with recommended methods of control. The chart is suitable for wall or desktop use. Check No. 6622 on the coupon and mail it to secure the chart.

#### No. 6623—Multi-Purpose Valves

The RegO Division of the Bastian Blessing Co. has announced two new multi-purpose valves for use on anhydrous ammonia field storage and nurse tanks. Company officials said that "design features of the new valves include an exclusive V-ring

Send me information on the items marked:

- |  |   |
|--|---|
| <input type="checkbox"/> No. 5754—Dryer Bulletin   | <input type="checkbox"/> No. 6620—Tank Brochure   |
| <input type="checkbox"/> No. 5757—Seed Treatment   | <input type="checkbox"/> No. 6621—Skin Protectant |
| <input type="checkbox"/> No. 5765—Hopper           | <input type="checkbox"/> No. 6622—Insect Control  |
| <input type="checkbox"/> No. 5769—Conveyor         | <input type="checkbox"/> No. 6623—Valves          |
| <input type="checkbox"/> No. 5770—Weighing Machine | <input type="checkbox"/> No. 6624—Movie           |
| <input type="checkbox"/> No. 5774—Catalog          | <input type="checkbox"/> No. 6625—Surface Agents  |
| <input type="checkbox"/> No. 5797—Farm Canvassing  | <input type="checkbox"/> No. 6626—Hydrocarbon     |
| <input type="checkbox"/> No. 6618—Injector         | <input type="checkbox"/> No. 6627—Film            |
| <input type="checkbox"/> No. 6619—Miticide         | <input type="checkbox"/> No. 6628—Carrier         |

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS  
PERMIT No. 2

(Sec. 34.9,  
P. L. & R.)  
MINNEAPOLIS,  
MINN.

BUSINESS REPLY ENVELOPE

No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

Reader Service Dept.

Minneapolis 1, Minn.



A new self-dumping hopper 30 in. wide, designed for handling bulk materials through narrow aisles and in confined areas, is available from Rouba Iron Works, Inc. The hopper has

**RALEIGH, N. C.—804 St. Mary's St.**  
**SALT LAKE CITY, UTAH—68 South Main**  
**SPOKANE, WASH.—521 E. Sprague**  
**ST. LOUIS, MO.—4251 Lindell Blvd.**  
**TAMPA, FLA.—3737 Neptune St.**  
**TULSA, OKLA.—1708 Ulca Square**  
**WICHITA, KAN.—501 KFH Building**

**TALLAHASSEE, FLA.**—Fertilizer consumption in Florida during July totaled 89,204 tons, according to the Florida Department of Agriculture. This included 38,234 tons of mixed goods and 50,970 tons of materials.





**NITROGEN DIVISION, ALLIED CHEMICAL • SUPPLIES**

# **TO HELP YOU SELL MIXED FERTILIZERS**

**Nitrogen Division Continues Powerful Advertising**



# THE BEST FERTILIZERS ARE MIXED FERTILIZERS

PPERS OF NITROGEN TO THE FERTILIZER INDUSTRY

The poster pictured above is the opening gun in the big, powerful 1957-58 advertising campaign now being conducted by Nitrogen Division, Allied Chemical, to help you sell mixed fertilizers.

Big posters similar to this in full color are now appearing on hundreds of billboards in leading farming areas. These posters urge farmers to buy their plant foods in the form of mixed fertilizers. **THE BEST FERTILIZERS ARE MIXED FERTILIZERS** is the theme of this campaign.

Mixed fertilizers offer many advantages to the farmer. They save time, labor and money and pay big profits on the investment. They overcome the difficulty of using separate materials and lessen the hazard of mis-use. Mixed fertilizers are practical interpretations of official recommendations. The right mixed fertilizer is like a professional prescription to fit the exact needs of the crop and the soil.

Mixed fertilizers are manufactured in many different analyses and combinations of major plant foods plus secondary plant foods and minor elements. Various carriers of plant foods are used to adapt fertilizers to particular needs.

All of this represents an enormous savings to the farmer in work, worry and expense.

Mixed fertilizers are farm efficiency in a bag. They help the farmer to make one acre do the work of two or more. They enable him to do the entire job of plant feeding with one trip across his field. Supplemental individual plant foods are needed under certain conditions but for most crops and soils *the best fertilizers are mixed fertilizers*.

Nitrogen Division, Allied Chemical, produces and sells nitrogen. But Nitrogen Division has always aggressively supported the importance of using nitrogen in a balanced fertilizer program. We will keep you posted on our continuing efforts to help you sell mixed fertilizers as this campaign unfolds. In the meantime, we will appreciate your comments and suggestions.

## NITROGEN DIVISION

Allied Chemical & Dye Corporation  
40 Rector Street, New York 6, N. Y.



**FREE:** Full-color reproductions of this billboard in small size (30 inches long) are available to you for use as wall posters or window streamers, without charge or obligation. Just request the quantity you desire from the address above. They will be sent to you promptly.





Doing Business With

## Oscar &amp; Pat



It was close to 2:30 p.m. when Pat McGillicuddy came back to the office from the chamber of commerce luncheon. The atmosphere around Oscar's desk was about 20° below, although the weather was about 85°.

Oscar always disapproved when his Irish partner deviated from regular office hours. To Oscar the time to work and work hard was between 7 a.m. until 5 p.m., no more, no less. He was not in favor of partners coming down to work evenings, or Sunday afternoon, or holidays, or any other off time. This world, Oscar often said, would get along wonderfully if people would just quit horsing around working hours and really work, and leave the coffee drinking, the storytelling, the bragging, the smoking and the golfing until after the work day was over.

In other words Oscar was a firm believer in the old school, namely, organize your life and stick to it, and never forget to take your discounts. On that theory he had built a fine bank account and whether he had any fun out of life didn't really matter. What did matter was "have you got it; the gelt, that is."

"Just as I thought," Pat said aloud, as he inspected an island and some wall shelving which was well stocked. "We've got lots of cat and dog stock, just like other merchants."

"We wouldn't have so much if you didn't keep buying and buying every time a salesman comes in," Oscar pointed out. "Ach, you should let me buy for three months. I would get the stock down."

"We've been over that before," Pat stated flatly. "The fact is, we have some sleeper stock, just like other merchants, and at the chamber of commerce meeting today, we decided to get rid of it."

"How, buy it yourselves?" It was a well known fact that Oscar thought a chamber of commerce was a waste of time.

"No, we're going to stage a 'ridiculous day sale,'" Pat said, enthusiasm creeping into his voice. "Merchants will move their cat and dog stock out on the street, pile it on tables—just as they did last year at Clear Lake, Iowa. It was the biggest sales promotion they ever tried, James R. Gilruth, secretary of the chamber of commerce, said."

Oscar looked pained at such apparent foolishness. "You can sit out there by those cats and dogs and make a fool of yourself, not me," he said. "Ach, I will sit in here and work. Ridiculous day . . . humbug."

Pat sighed. "They worked it at Clear Lake, and we can work it here," he said. "Every merchant up there dressed in crazy costumes. One was dressed like Marilyn Monroe, another had a suit of white underwear on and wore a black top hat. And they say one fellow wore a pair of purple bloomers and a parasol hat—all from the 1920's."

"And you, you fellows are going to dress up crazy like that?" Oscar asked unbelievably.

Pat nodded. "Sure, anything to draw a crowd. The more people we can get to town the more people will come into our stores and buy. People like to see merchants dressed up crazy and let down their hair. Mert Porter said he would like to see you dressed up as Adolph Hitler, Oscar. He is going to dress up like Mae West. He's built for it."

"I will not dress up like Hitler," snapped Oscar. "Foolish, foolish, fool-

ish. You fellows will act like kids. People will think you are crazy."

Pat laughed. "Oh, 'twill be a grand day, Oscar. Two business men will put on a milk drinking contest, drinking out of baby bottle nipples. And there will be a foot washing contest for fat women, and the winner has to get into a size 22½ dress and fit in it, to get the dress free of charge. Then there will be a fake bank holdup. Salesmen will arrest some citizens and throw them in jail for five minutes. And there will be prizes, too."

"Himmel!" ejaculated Oscar. "I will keep all the warehouse doors locked on that day, so nobody will come in and steal stuff. Crazy—what is the world coming to?"

"The attendance prizes are dillies," Pat said with a grin. "10¢ an inch to the tallest man, 1¢ a pound to the heaviest woman, \$5 to the farm family coming from the longest distance, \$5 to the family coming in the oldest car."

Oscar blinked. "I had an uncle once that they sent to the nut house," he said sharply. "Now I remember. He came from Clear Lake."

"The mixed up special edition of the newspaper for 'ridiculous day' will really be something," Pat said with a smile. "Ads are supposed to be mixed up in the copy, tipped headlines, zany stuff, etc. The lumber man—Clark Lumber—will change his name to Dirty Pond Kindling Co., and the concrete block man sells blocks to people for 10¢ each, but they have to carry them in their arms for one mile."

"Himmel!" cried Oscar again. "What's the matter with business

men in this town? Ach, are they so far in debt they want to put on this foolish sale, and be the laughing stock of everybody in the country?"

"The Clear Lake merchants weren't laughing stock," Pat said. "The event was such a success last year that James Gilruth, the secretary, wrote Mike Porter, the furniture man, they are going to put it on again this September to get rid of cat and dog stock and to win customers on regular merchandise."

"I will never move to Clear Lake," Oscar announced bitterly. "Ach, when I retire I will go to Milwaukee and play schafskopf with the Germans down there. They keep their feet on the ground."

"And their stomachs against the tables," Pat joshed. "Come on, Oscar, wake up. The world goes ahead and we must move with it. People nowadays are different from years ago. They like to be free and easy and let their hair down, and have a good time."

"Yah," sneered Oscar, "and every one of them hairs is mortgaged, too. Ach, I ain't got too many hairs, but what I've got is mine own, I kin tell you." And with that remark he grabbed his seven-year-old, yellowed sailor, jammed it on his balding head and stomped stiffly out into the warehouse, wondering why in the world people weren't satisfied to keep the world just as it was back in the days of the first World's Fair, when a dollar was a dollar and people weren't looking for the moon wrapped with each purchase.



## FARM SERVICE DATA

## Extension Station Reports

Broward County, Florida, citrus growers are watching with interest nitrogen fertilizer tests under way near Ft. Lauderdale, says Robert S. Pryor, county agent.

Rates and sources of nitrogen are being checked on groves planted in sandy muck and muck soils. Tree growth and yields will be checked on soils with no nitrogen fertilizer added and in plantings with varying amounts up to 240 lb. per acre.

These research demonstrations were set up by Drs. I. Steward and C. D. Leonard of the University of Florida Citrus Experiment Station, Lake Alfred, and in cooperation with the Florida Agricultural Extension Service.

Damage to the roots of alfalfa by the clover root curculio can cause a substantial reduction in the yield of hay, but tests at Virginia Polytechnic Institute Agricultural Experiment Station are pointing the way to control.

Dr. E. C. Turner, Jr., associate entomologist, says studies on the life history and habits of the curculio indicate that the best time to apply granulated soil insecticides on alfalfa is in the fall or early spring when adults are more active and the larvae have not moved below the soil surface.

Other tests have shown that diel-drin applied to the soil at the rate of

2 lb. of actual toxicant per acre just before seeding will control the curculio for at least 3 years. Heptachlor at 2½ lb. per acre, chlordane at 5 lb. per acre and aldrin at 4 lb. per acre also have given excellent control. Dieldrin or heptachlor each at 1 lb. per acre applied as sprays have given fair control.

The scientist also believes that a fungus which was found in Virginia in the summer of 1953 attacking newly emerged clover root curculio adults is a natural enemy of the curculio and may reduce the population to the extent that it is not an economic problem in certain years.

In order to insure good yields of fall seeded crops such as small grain, pastures and alfalfa, it is important that these crops receive a liberal amount of fertilizer at time of seeding. The best guide to fertilization is through soil testing, according to Dr. William D. Bishop, agronomist of the University of Tennessee Agricultural Extension Service. Where this information is not available, the following general fertilizer recommendations have been found to give good yields of high quality forage under normal conditions, according to Dr. Bishop.

Small grain alone: At seeding, 4-12-8, 300-400 lb. per acre. Top dressing (spring), nitrogen, 30-40 lb. per acre.

Small grain with crimson clover, vetch, etc.: At seeding, 6-12-12, 300-

400 lb. per acre. Top dressing, nitrogen, 30-40 lb. per acre.

Permanent pasture: Establishment 6-12-12, or 3-12-12, 800-1,000 lb. per acre.

Alfalfa: Establishment; 3-12-12, 800-1,000 lb. per acre. Borax, 20-25 lb. per acre.

Where small grain is used for pasture only an extra application of nitrogen at seeding time is recommended, Dr. Bishop says. The use of 75 to 100 lb. of ammonium nitrate, or its equivalent, will normally provide good quality forage at a low cost, he said.

In the high phosphate soils of the outer central basin and other areas the use of a fertilizer containing little or no phosphate will normally give good results on any of the crops mentioned above. Annual application of from 500 to 600 lb. of a fertilizer such as 0-10-20 with borax should be used on alfalfa in order to maintain the stand and insure high yields.

Diazinon has been found one of the most effective insecticides for the control of houseflies in dairy barns, the South Carolina Agricultural Experiment Station has reported.

Tests in spraying 37 dairy and eight beef cattle barns with 0.5% concentration, and applied to the entire inside surface of the barn except the floors, gave four to six weeks satisfactory control.

## OVER THE COUNTER

(Continued from page 9)

most one half (47.9%) said it was because their sales were inadequate and another 21.2% blamed tough competition; 8.9% said it was because they couldn't collect the money owed them and another 7.9% said it was inventory burden that forced them out of business; 7.0% said heavy operating costs put them out of business and another 6.6% said their hands were tied by fixed assets; a few, 3.1%, said their trouble was poor location.

Because some failures in this analysis were attributed to a combination of apparent causes, the figures add up to slightly more than 91.3% of the failures analyzed.

## Failures of Retailers of Feed, Farm and Garden Supplies, 1940-1956

Year	Number	Liabilities
1940	35	\$ 350,000
1941	35	324,000
1942	31	262,000
1943	8	143,000
1944	2	15,000
1945	3	84,000
1946	3	33,000
1947	9	116,000
1948	9	214,000
1949	27	753,000
1950	34	485,000
1951	27	566,000
1952	32	2,146,000
1953	31	1,004,000
1954	34	926,000
1955	42	1,359,000
1956	31	634,000

Year	Number	Liabilities
1940	5	\$ 25,000
1941	3	13,000
1942	4	25,000
1943	-	-
1944	-	-
1945	-	-
1946	-	-
1947	1	9,000
1948	3	195,000
1949	6	168,000
1950	8	71,000
1951	7	78,000
1952	6	181,000
1953	16	1,298,000
1954	14	418,000
1955	14	191,000
1956	21	428,000

This record includes those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors.

Underlying causes—	Apparent causes—
Neglect, 4.3%	Poor health, 2.5%
	Bad habits, 1.0%
	Marital difficulties, 0.5%
	Other, 0.3%
Fraud, 2.1%	Irregular disposal of assets, 1.3%
	False financial statement, 0.4%
	Misleading name, 0.1%
	Premeditated overbuy, 0.1%
	Other, 0.2%
Disaster, 1.4%	Fire, 0.6%
	Flood, 0.2%
	Employees' fraud, 0.1%
	Strike, 0.1%
	Burglary, 0.1%
	Other, 0.3%



## Saving Money on Mail List Maintenance

Recent changes in the postal rules and regulations raised the rates for mailing list corrections. This has turned the spotlight on how to control costs and keep mailing lists up-to-date.

**Post Office Corrections:** Many farm dealers have depended on the local post office to keep the mailing list up-to-date. The cost on this was only 1¢ per name submitted for checking with a minimum of 25 names checked at one time. This was the least costly of all methods of checking any mailing list.

Now, however, the rates have changed. The current cost for having the post office department check a mailing list is 5¢ per name submitted for correction with a minimum charge of \$1. In addition, the names must be submitted on cards (similar in size and thickness to government post cards) with the name on the lower right hand corner. Corrections are made and the cards returned to the dealer.

**Form 3547:** Third class mailings can use this method of correcting a mailing list. The request for Form 3547 should read simply: "Form 3547 Requested."

The cost for this method of checking a mailing list is 5¢ for each Form 3547 returned. Thus, only the errors in a mailing list are paid for and the list is kept up-to-date at a reasonable cost.

**Do-It-Yourself:** When a new telephone directory is issued, this becomes a good source of correct names and addresses. Of course, it will only cover customers with telephones, but in most cases this will represent the best customers. To be most valuable for mailing list maintenance, the dealer should check his list with the tele-

phone directory as soon after it is received as possible. In 30 days, a telephone directory is only about 95% accurate and it keeps declining in accuracy month-after-month.

**Letter Shop:** Many letter shops maintain mailing lists of local people. These firms will check a mailing list against their own master list that is constantly being corrected. The cost for this will vary from ½¢ per name checked to 5¢ or more. It will also vary with other services the letter shop sells.

**Business Reply Card:** The dealer can send out a double post card asking customers to indicate their correct name and address. When the dealer uses the government supplied post cards, the cost is 4¢ for each name checked—with no assurance that everyone will respond to the request for corrections.

Double post cards are two attached cards, one of which is to be detached by the receiver and returned through the mail as a reply. Double cards must be so prepared that the address on the reply portion is on the inside when the double card is mailed.

Business reply cards (permits for this are free at the post office) can be used at a lower cost. The cost for this is 4¢ for each card returned with name and address corrections by customers.

Dealers using direct mail advertising know how important it is to keep the mailing list up-to-date. And, since the cost of the post office correction of lists has increased, attention has shifted to the cost of keeping the list current at the lowest possible cost.



By RAYMOND ROSSON

County Agent, Washington County, Tenn.

We've been on the Fifty Yard Line so to speak, and we've watched many farmers make a touchdown and we've seen more than you would think make those extra points.

We've seen this happen in Washington County, Tennessee and we've seen it happen in many of the states. We'll admit, we haven't seen enough farmers making those extra points, like kicking the goal in a football game.

You know: I think there is one reason for this and here is my reason . . . "Perhaps the game hasn't been tight enough and we didn't think we needed those extra points."

As the game tightens, we would suggest a few ways to make extra points.

*Sow a heavily seeded winter pasture right now and use a very heavy application of fertilizer and those milk cows will make the points you are looking for . . . also produce all the alfalfa hay the cows can eat (winter and summer).*

Sow a well seeded permanent pasture, using a good application of fertilizer, when seeding and don't forget to fertilize this pasture every year and maybe twice each year. For our area, we like about 20 lb. of orchard grass, 2 lb. of Ladino clover and 5 to 10 lb. of alfalfa per acre. This will make a good permanent pasture.

And don't forget . . . the cows and pigs like to graze legumes and grasses. They will make hogs of themselves and enjoy it . . . and the farmer will make more clear profit, and he'll enjoy that.

## ADVERTISEMENT

# The Bulletin Board

No. 29 in a series from the Spencer Chemical Magazine, "Today's Fertilizer Dealer"

## The Spencer Question Box

Edited by

Proctor Gull

Chief Agronomist, Spencer Chemical Co.



"The Question Box" is one of the most popular features of TFD, Spencer Chemical Company's magazine for fertilizer dealers. Questions submitted by dealers are answered by Proctor Gull, head of Spencer's 7-man field agronomy team. Here are a few timely questions and answers from recent issues of TFD.

**1. QUESTION:** What effect does burning of crop residues have on soil fertility?—Kenneth Green, Patton, Mo.

**ANSWER:** Burning such residues as small grain and soybean straw, grass, grass sods and cornstalks is a very poor practice, because it causes rapid decomposition of this important source of organic matter for the soil. And organic matter is an important part of good soil fertility.

Crop residues are high in carbon, which serves as food for soil organisms. If this carbon source is destroyed, the bacteria in the soil decrease, and the soil becomes "lifeless" and of poor tilth. In addition to carbon, the other important food in the diet of the soil bacteria is nitrogen. For optimum growth these bacteria need about 11 parts of carbon to 1 part nitrogen.

It is true that when a lot of straw, for example, is plowed under for corn that is not adequately fertilized, the yield is typically poor. This experience, I believe, has convinced some that burning would help such a situation.

Actually what happens is that the soil bacteria have a healthy supply of carbon to digest when you plow down residues. To assimilate all this carbon, they feed on (tie up) most of the nitrogen in the soil, too, in an effort to balance their diet.

The solution is not to remove the carbon by burning but to add more nitrogen. This will speed up the decomposition of organic matter, add to a healthy soil microorganism popu-

lation, and therefore, aid in the fertility build-up of the soil.

**2. QUESTION:** Is it better to plow down nitrogen and potash or disk in after breaking for tobacco?—Floyd Dudgeon, Cane Valley, Ky.

**ANSWER:** The general practice in Kentucky is to disk in fertilizer materials for tobacco instead of plow down, and there is some merit to this method of application.

First, tobacco is generally a shallower-rooted crop than others, such as corn.

Secondly, tobacco fields are often prepared well in advance of transplanting or setting time, to eliminate as many weeds as possible. Plow-down applications of nitrogen and potash, particularly nitrogen, well in advance of the cropping season could lead to losses due to leaching, if heavy rainfall should occur. Third, placing your plant food in the soil area where the mass of the feeding roots for the young plants will be, will promote the rapid development of the plant.

Two factors might be considered as favoring plow down applications for tobacco. First, where bulk spreading equipment is available, the fertilizer can be spread by truck before the field is plowed and the ground is soft. Second, plow-down places the fertilizer deeper into the soil where moisture conditions will be more favorable for utilization in the summer months, particularly if frequent rains do not occur.

Also, with heavy rates of fertilization, such as practiced in tobacco production, plowing down the fertilizer removes the high concentration of salts, such as nitrate and potash salts, from the root zone of the plant, thus reducing chance of injury (although the risk is not too great).

Actually, yield response over the long run should probably show little significant difference between the two methods of application. It therefore narrows down to the most economical method for you. If bulk spreading services are available, plow-down might be of advantage to you cost-wise. Otherwise, disking in might prove best.



**To Fertilizer Dealers ONLY**

**SPENCER CHEMICAL COMPANY**  
609 Dwight Building  
Kansas City 5, Missouri

Gentlemen: I am a fertilizer dealer not presently receiving Today's Fertilizer Dealer magazine. Please send me a free subscription without obligation.

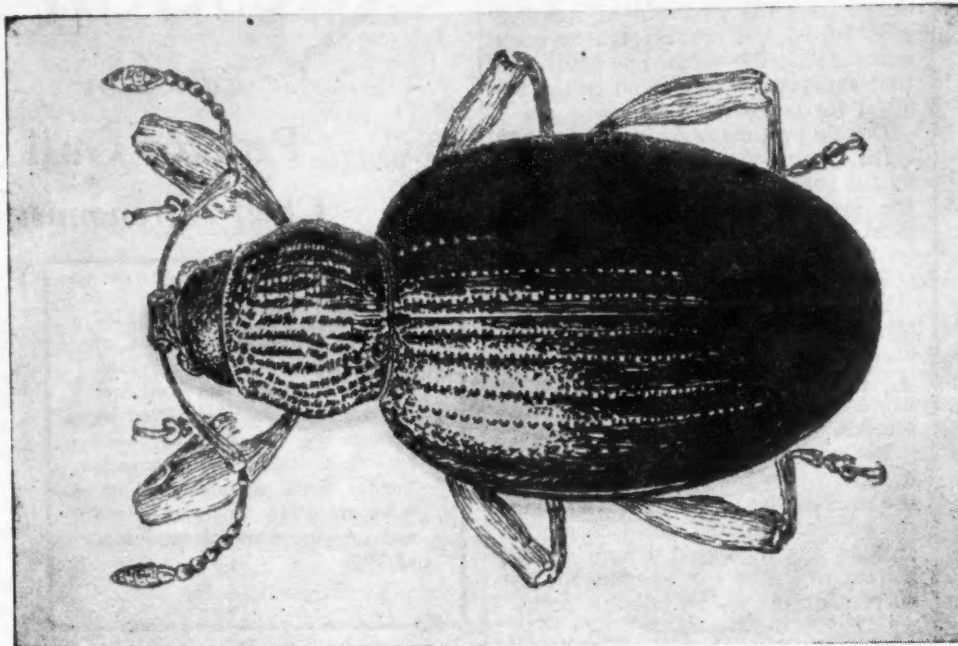
Name.....  
Firm.....  
Post Office.....State.....

*Spencer Supplies the Nitrogen*



# BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board



## Strawberry Weevil

### How to Identify

The adult weevil, illustrated above, is described as being reddish-brown in color, measuring from 1/12 inch to 1/8 inch in length. Young grubs of the species are soft-bodied, white and legless. They remain in this stage for about 4 weeks before entering the pupal stage.

### Habits of the Strawberry Weevil

Adults are active during the early part of the summer, feeding until about mid-summer, then going into hibernation, sheltered under trash, where they remain for the rest of the summer, fall and winter months. Emergence from this stage is in the spring. The female weevil makes a puncture in the strawberry bud and inserts an egg. The young grubs that hatch within the bud feed on it and stay on through their pupal stage, emerging as adults.

### Damage Done by Weevil

As indicated above, the strawberry buds are killed through the egg-laying of the adult beetle and the feeding of the young within the bud. Infested strawberry plants are characterized by killed buds and fruit hanging on partly-severed stems. In addition to strawberries, the pest attacks wild blackberry, raspberries, and dewberries. Its distribution is in the eastern part of the U.S.

### Control of Strawberry Weevil

A number of insecticides, both old and new have been recommended in various states for control of this pest. In view of the possibility of residues remaining on the berries, extra caution should be taken in applying any toxicant. State experiment station entomologists and county agents should be consulted for local recommendations for this year.

Illustration of Strawberry Weevil furnished Croplife through the courtesy of the U.S. Department of Agriculture.



This advertisement is part of a continuing Monsanto Campaign to help you sell LION AMMONIUM NITRATE.



\*Trade-mark of Monsanto Chemical Company

## You save money with LION in your fields

**LION BRAND AMMONIUM NITRATE IS MORE ECONOMICAL THAN NITRATE OF SODA OR AMMONIUM NITRATE-LIMESTONE CARRIERS**

**FOR LOW-COST NITROGEN,** LION Ammonium Nitrate is the brand. Guaranteed to contain 33.5% nitrogen, LION is...

• **Far more economical** than nitrate of soda, which contains only 16% nitrogen. You get more than *twice as much* of the valuable plant food, nitrogen, in every bag of LION brand Ammonium Nitrate than you do in any bag of nitrate of soda.

• **A better buy** than 20.5% ammonium nitrate-limestone carriers, LION gives you *better than 50%* more nitrogen in every bag.

**FOR EASIER SPREADING,** Lion Ammonium Nitrate is in pellet form. These pellets are specially coated to withstand caking... then packed in specially lined, moisture-resistant bags. Result: LION brand is *guaranteed* to flow freely—not for just a year, but until used—when you follow storage directions on the bag.

MONSANTO CHEMICAL COMPANY • INORGANIC CHEMICALS DIVISION • ST. LOUIS 1, MO.

### 3 EASY STEPS TO GET ALL THE FEEDING-POWER YOUR CROPS NEED

**1. TEST YOUR SOIL** to see what kinds and amounts of fertilizers are needed. Your local farm authorities will help.

**2. ORDER WHAT YOU NEED** of mixed fertilizer and Lion brand Ammonium Nitrate from your fertilizer dealer. When you buy LION, you get top-quality, low-cost nitrogen fertilizer *guaranteed* to flow freely; *guaranteed* to contain 33.5% nitrogen.

**3. APPLY THE FULL AMOUNT** of mixed fertilizer and Lion brand Ammonium Nitrate soil tests indicate. Don't skimp—fertilizer is the least expensive item you use for crop production.

### GROW MORE PROFITABLY

... Weed Killers • Brush Killers • Parathion Insecticides • Meta-Green® to keep silage fresh • Phosphates (liquid and solid) • LION Sulphate of Ammonia • Anhydrous Ammonia.





## WORLD FERTILIZER SITUATION

(Continued from page 1)

pace with population growth—both estimated now at 26% above prewar. In the industrialized countries of western Europe, and in the U.S. and Japan, greater use of fertilizer has undoubtedly increased production very considerably. In the underdeveloped countries, however, the increases in production since the war have been effected more by improvements in irrigation, better cultural practices and extended crop acreages. The tonnages of fertilizer applied in these countries have not been sufficiently large to increase over-all production significantly. This is also true of India, where fertilizer consumption has increased rapidly in recent years.

Europe, the U.S. and Japan are now using 87% of the world's consumed fertilizer on 34% of the world's arable land area. The remaining 13% of consumed fertilizers is being used on 66% of the world's arable land area. Here generally the yields are low, the countries underdeveloped and the arable land per capita exceedingly small, making it difficult to generate capital for industrial development. This situation prevails for most of the Far East, the Middle East and much of Africa and Latin America.

Europe occupies 14.6% of the world's arable area, excluding the USSR and Communist China, yet is using 48% of the world's consumed fertilizers. Nearly 60% of this consumption occurs in the eight western European countries, where the yields are among the highest in the world. The Netherlands and Belgium are the highest consumers of fertilizer per arable acre. West Germany and the U.K. are heavy users, too. Austria, France, Ireland and Switzerland use considerably less.

Europe's fertilizer consumption has gone up from 3.1 million tons in 1938 to 5.4 million in 1956, with

an average consumption for the above eight countries of 128 kilograms of the combined nutrients per arable hectare.

This is a very high rate of consumption for a large area. Consumption of fertilizer in northern and southern Europe is less per arable hectare than in the West, averaging 91 kilograms in Scandinavia and 30 in the southern countries, including Italy.

Agricultural production in Europe, exclusive of the satellites, recovered rapidly after World War II. With Marshall Plan aid, it rose to about one fourth above prewar in 1955-56. On a per capita basis, Europe's farm output is 10% above prewar.

It is difficult to measure how much of this increase is the direct result of increased fertilizer use. Agricultural technology generally has improved in Europe. Mechanization has increased greatly. Better seed stocks and better pest and disease controls have also contributed.

Still it is highly probable that more extensive use of fertilizer has been the most important single factor in increasing crop production.

Will Europe increase its fertilizer consumption still further? This seems highly likely, especially among those countries whose present fertilizer use is greatly below that of the high users. The southern European countries are consuming fertilizers at a lower rate per hectare than the entire U.S. Austria, France, Sweden and Finland are also relatively low consumers per hectare as compared with the Netherlands, Belgium, West Germany and the U.K.

Over the past three years Europe's consumption of the combined fertilizer nutrients has increased about 5% annually. Further increases will depend largely on government policy—

especially policy on subsidies and prices. But world prices and the level of Europe's economic activity will also determine consumption.

North and Central America account for 34% of world fertilizer consumption. In this large area the U.S.—with 18.6% of the world's arable land—accounts for 32 of the 34%. Canada and Cuba are the only other consumers with any sizeable tonnage, and Canada accounts for most of the 2%.

The U.S. has increased its fertilizer consumption from 1.3 million metric tons of combined nutrients in 1938 to 6.3 million tons in 1956.

Agricultural production in 1956-57 is estimated at 47% above prewar on about the same cropped acreage.

Not all of this increase was brought about by increased fertilizer use. Improved seed stocks and better cultural practices have contributed significantly to increased yields. Improvements in the feeding and management of livestock and in the control and eradication of pests and diseases have also helped increase the productive efficiency of American farms.

Nevertheless, the greatly increased use of fertilizer in the U.S. over the past 20 years has perhaps been the most decisive stimulant to yields.

As to the future: If the gross national product in the U.S. continues to grow uniformly at not less than 3½% a year and if returns to capital, management and labor in commercial farms should be reasonably attractive compared to returns in other productive enterprises, we shall probably see a further retirement of small subsistence and marginal farms, further enlargement of commercial farms, the permanent retirement from crop production of marginal areas within such farms, a further shrinkage of the total cropped acreage, and an increase in fertilizer consumption of 3 to 5% a year over the next 20 years.

South America uses relatively little fertilizer. Although the percentage increase in recent years has been considerable—with Brazil, Chile and Peru as the principal users—not enough fertilizer has been used as yet to affect over-all agricultural production significantly. Consumption has gone up from 70,000 tons in 1938 to 340,000 tons in 1956. While this is rather insignificant for 65 million arable hectares, further increases may be looked for.

Asia has increased its fertilizer consumption from a million tons of combined plant nutrients in 1938 to 1.8 million tons in 1956. Seventy per cent of the increase occurred in Japan, which has only 0.05% of the world's arable land but consumes 6.5% of the world's consumed fer-

tilizer. Japan is the third highest consumer of fertilizer per arable hectare, exceeded only by the Netherlands and Belgium.

By heavy fertilization, further improvements in irrigation, good cultural practices, and continuous improvements in seed, Japan can grow 80% of the food for its 90 million people on 5.1 million hectares.

India is making a substantial effort to improve its facilities for agricultural production through the construction of new irrigation works and new fertilizer plants. India is also moving rapidly on the establishment of a national extension service. However, India's 4.5 million annual net increase in population makes the task of meeting food needs exceedingly difficult.

India is presently using 150,000 tons of nitrogen on 150 million hectares of arable land, as against Japan's 560,000 tons on 5.1 million hectares. The second Five Year Plan of India provides for the construction of four new nitrogen fertilizer plants with a combined annual capacity of about 325,000 tons. If these are completed on schedule, India will have available from domestic production in 1961 about 400,000 tons of nitrogen—a small supply for 150 million hectares.

The 325,000 additional tons of nitrogen—if they are supplemented with appropriate amounts of phosphoric acid and potash and applied judiciously where water is available—can be expected to produce about 3.5 million additional tons of food grain. This entire amount will be needed to feed the 22 million extra persons born by 1961, the last year of the Second Five Year Plan. India may not apply all this nitrogen on food grains; some undoubtedly will go on sugarcane, tea, and nonfood crops. Thus, India may be expected to improve water availabilities, cultural practices, and seed stocks for crop lands for which fertilizer will not be available. Additional food-grain production from these endeavors may be expected. But these will do little more than provide some small improvement in caloric intake of the people. India is likely to continue as a net importer of food grains for many years to come, the annual amounts varying with the vagaries of the monsoons.

Of the remaining Asian countries only South Korea and the Philippines use any appreciable quantities of fertilizer. Some further improvements in fertilizer use may be expected in these two countries over the next several years. Turkey, Pakistan, the Rice Bowl countries, and Indonesia use very little. Their plans for the construction of fertilizer plants, if realized

WORLD FERTILIZER CONSUMPTION  
AVERAGE 1949-53, ANNUAL 1938 AND 1955-57<sup>1</sup>

Item	1938	Average 1949-53	1955	1956 <sup>2</sup>	1957 <sup>3</sup>
<b>World (excl. USSR and China):</b>	<b>1,000 m.t.</b>	<b>1,000 m.t.</b>	<b>1,000 m.t.</b>	<b>1,000 m.t.</b>	<b>1,000 m.t.</b>
N	2,400	4,000	6,000	6,400	6,700
P <sub>2</sub> O <sub>5</sub>	3,500	5,600	6,700	7,100	7,100
K <sub>2</sub> O	2,500	4,200	5,600	6,100	6,300
<b>Total</b>	<b>8,400</b>	<b>13,800</b>	<b>18,300</b>	<b>19,600</b>	<b>20,100</b>
<b>Europe (excl. USSR):</b>					
N	1,430	1,840	2,600	2,850	2,950
P <sub>2</sub> O <sub>5</sub>	2,000	2,480	3,040	3,180	3,200
K <sub>2</sub> O	1,900	2,550	3,200	3,390	3,500
<b>Total</b>	<b>5,330</b>	<b>6,870</b>	<b>8,840</b>	<b>9,420</b>	<b>9,650</b>
<b>North and Central America:</b>					
N	350	1,250	2,170	2,200	2,340
P <sub>2</sub> O <sub>5</sub>	700	2,110	2,320	2,380	2,300
K <sub>2</sub> O	370	1,340	1,800	2,090	2,100
<b>Total</b>	<b>1,420</b>	<b>4,700</b>	<b>6,290</b>	<b>6,670</b>	<b>6,740</b>
<b>South America:</b>					
N	30	70	110	120	125
P <sub>2</sub> O <sub>5</sub>	30	90	130	150	150
K <sub>2</sub> O	10	30	70	70	80
<b>Total</b>	<b>70</b>	<b>190</b>	<b>310</b>	<b>340</b>	<b>355</b>
<b>Asia (excl. China):</b>					
N	500	640	870	960	1,030
P <sub>2</sub> O <sub>5</sub>	390	310	370	430	500
K <sub>2</sub> O	140	180	420	440	500
<b>Total</b>	<b>1,030</b>	<b>1,130</b>	<b>1,660</b>	<b>1,830</b>	<b>2,030</b>
<b>Africa:</b>					
N	100	140	190	200	200
P <sub>2</sub> O <sub>5</sub>	80	160	230	220	240
K <sub>2</sub> O	20	40	60	60	70
<b>Total</b>	<b>200</b>	<b>340</b>	<b>480</b>	<b>480</b>	<b>510</b>
<b>Oceania:</b>					
N	30	40	40	50	50
P <sub>2</sub> O <sub>5</sub>	330	490	640	700	760
K <sub>2</sub> O	20	30	40	60	60
<b>Total</b>	<b>380</b>	<b>560</b>	<b>720</b>	<b>810</b>	<b>870</b>

<sup>1</sup>For years ending June 30. <sup>2</sup>Preliminary. <sup>3</sup>Forecasts. Figures for 1955 and 1957, rounded and adjusted for comparisons, from *An Annual Review of World Production and Consumption of Fertilizer, 1956*, and figures for 1938, 1949-53, and 1956 from *Monthly Bulletin of Agricultural Economics and Statistics*, table 1, January 1957, Food and Agriculture Organization, Rome.

ARABLE LAND, FERTILIZER CONSUMPTION, WORLD TOTAL,  
BY AREAS AND PER ARABLE HECTARE, 1956<sup>1</sup>

Area	Arable land		Consumption of fertilizer					
	Total	Percent world total	Combined N, P <sub>2</sub> O <sub>5</sub> , and K <sub>2</sub> O		Average consumption per arable hectare			
	1,000 ha. <sup>2</sup>	Pct.	1,000 m.t. <sup>3</sup>	Pct.	Kg.	Kg. <sup>4</sup>	Kg. <sup>4</sup>	Combined N, P <sub>2</sub> O <sub>5</sub> , K <sub>2</sub> O
<b>World total (excl. USSR and China)</b>	1,037,000	100	19,550	100	6.2	6.8	5.9	18.9
<b>Europe (excl. USSR)</b>	151,000	14.6	9,420	48.2	18.9	21.1	22.5	62.5
Netherlands	(1,060)	(.1)	(459)	(2.3)	(172.5)	(104.5)	(156.0)	(433.0)
Belgium	(1,008)	(.1)	(321)	(1.6)	(81.4)	(91.6)	(145.6)	(318.6)
<b>North and Central America</b>	260,000	25.0	6,670	34.1	8.5	9.2	8.0	25.7
United States	(193,371)	(18.6)	(6,261)	(32.0)	(10.7)	(11.4)	(10.2)	(32.3)
<b>South America</b>	65,000	6.3	340	1.7	1.8	2.3	1.1	5.2
<b>Asia (excl. China)</b>	289,000	27.9	1,830	9.4	3.3	1.5	1.5	6.3
Japan	(5,095)	(.5)	(1,265)	(6.5)	(109.8)	(63.4)	(75.1)	(248.3)
<b>Africa</b>	247,000	23.8	480	2.5	.8	.9	.2	1.9
<b>Oceania</b>	25,000	2.4	810	4.1	2.0	2.6	2.4	32.4

<sup>1</sup>For fertilizer consumption, year ending June 30; figures preliminary.

<sup>2</sup>Hectare = 2.471 acres.

<sup>3</sup>Metric ton = 2,204.6 pounds.

<sup>4</sup>Kilogram = 2.205 pounds.

Figures on arable land from 1955 Yearbook on Production, V. IX, Pt. 1, table 1, and figures on fertilizer consumption from *Monthly Bulletin of Agricultural Economics and Statistics*, table 1, January 1957, Food and Agriculture Organization, Rome.



are not expected to change present fertilizer use significantly.

These countries have balance-of-payment problems which make industrial development difficult; and while this condition prevails, they are unlikely to buy large quantities of fertilizer on world markets. Some increases in food-grain production will occur, but these will probably be no more than meet the food needs of the net increases in population. Indonesia may even need to import increasing quantities of rice in future years.

Africa has increased fertilizer consumption from 200,000 tons of combined plant nutrients in 1938 to 480,000 tons in 1956. This is a small supply for 247 million arable hectares. Moreover, most of this has been used in Egypt and the Union of South Africa. Further increases in consumption of fertilizers can be expected in these and other African countries in the future, but not enough to affect the world food supply significantly. The large net annual increase in Africa's population, together with improvements in the diet, will require additions to the food supply that are unlikely to be met by increased production over the next several years. Therefore, we may expect Africa to draw increasingly on North America for food grains.

Oceania—that is, Australia and New Zealand principally—increased fertilizer consumption from 380,000 tons of combined plant nutrients in 1938 to 810,000 tons in 1956 for a total of 25 million arable hectares. Phosphoric acid makes up seven eighths of total consumption. Further significant increases in fertilizer consumption may be looked for in Oceania, especially in Australia. There the present rate of application per arable hectare, including permanent cultivated grasslands, is only a small fraction of what it is in New Zealand.

The USSR and Communist China have been excluded from the world and area total for fertilizer consumption and from the arable land figures. Both these countries use considerable quantities of fertilizers but no accurate figures are available. The USSR has about 225 million hectares of arable land, and Mainland China, about 90 million. It is reported that in 1955 the USSR produced 670,000 metric tons of nitrogen for agricultural use, and that for the same year Communist China imported a total of 669,000 tons of fertilizer carriers, both mixed and otherwise, mostly from Western Europe and Japan.

Fertilizer consumption in Mainland China in 1955 is roughly estimated at about 1.5 million tons of fertilizer carriers, which on a plant nutrient basis might be reduced to 300,000 to 400,000 metric tons. This would be a very small supply for 90 million hectares of arable land.

The population of Mainland China—estimated at 600 million—is increasing annually at the rate of about 7.5 million. An increasingly serious food problem is likely to face Communist China in the years ahead, unless much more fertilizer can be made available.

For the world as a whole, agricultural production during the past three years has held at only 97% of prewar on a per capita basis. For the Free World the percentage is 100. For the Free Far East the comparable figure is 95. If Mainland China were included the figure would be lower. For the U.S. the comparable figure averages at 110, and for Canada somewhat less, though it is estimated at 110 for 1956-57.

Conclusion. Although agricultural production in the Free World on a per capita basis is about the same today as 20 years ago—and has thus kept pace with population growth—the increases in production, largely due to fertilizer, have been unevenly distributed. As a result, we now have large supplies in North Amer-

ica and large deficits in the Far East.

In prewar years the Far East had a net surplus of 2 to 3 million metric tons of food grains. In recent years it has had a net deficit of 5 to 7 million tons. The Far East is a critical food-problem area, and this condition is likely to grow worse in the years ahead.

So far as can be seen at this time, the Far East peoples and governments do not now have, nor are they likely to have for many years, the financial resources with which to build the fertilizer plants required. And without these, they cannot increase fertilizer consumption sufficiently to meet their increasing food and fiber needs.

#### APPOINT COUNTY AGENT

BARNWELL, S.C.—J. B. Griffith, former assistant agent in Orangeburg County, has been named agent in Barnwell County, according to George B. Nutt, Clemson extension service director. Mr. Griffith succeeds D. Austin Shelley who was recently appointed district agent in the Savannah Valley district.

#### NEW YORK SYMPOSIUM

GENEVA, N.Y.—“The Role of Agriculture in Future Society” will be the theme of a 75th anniversary symposium at Cornell's New York State Experiment Station here on Oct. 4.

## High Nitrogen and Seeding Rates Boost Fall Oat Forage

KNOXVILLE—High rates of seeding and high rates of nitrogen increased the yield of oat forage in the fall as shown by experiments conducted at the Middle Tennessee Experiment Station. Dr. W. L. Parks, University of Tennessee agronomist, and E. J. Chapman, station superintendent, were in charge of the two years' testing.

The 8-bu.-per-acre seeding rate of oats where 120 lb. per acre of nitrogen was applied at seeding produced 2,230 lb. of forage in the fall as compared to 1,165 lb. without added nitrogen. The 2-bu. per acre seeding rate with 120 lb. of nitrogen applied at seeding made 1,175 lb. of forage in contrast with 460 lb. where no nitrogen was added.

The 4-bu. per acre seeding rate produced 652 lb. of forage without added nitrogen, 1,110 with 30 lb. of nitrogen, 1,455 with 60 lb. of nitrogen and 1,680 lb. where 120 lb. of nitrogen was applied.

A greater total yield was produced by splitting the 60 and 120 pound rates of nitrogen into fall and spring applications than when all this amount was put down at seeding.

Split applications were applied at seeding and in early March. However, when the nitrogen is divided into fall and spring applications, fall forage production is decreased and spring production is considerably increased as compared to putting all of the nitrogen down during fall seeding.

The higher rates of seeding produced more forage in the fall, but there was no difference in total yield for the entire growing season between the 2, 4 and 8 bu. rates of seeding. This experiment was conducted on a Maury soil which was high in phosphate and potash and was adequately supplied with lime.

#### GRASSLAND FARMERS

CLEMSON, S.C.—G. E. Hawkins, Sr., Greenwood, has been named South Carolina's "Grassland Farmer of 1956" and was presented with \$600 cash prize during the Farm & Home Week held here. District winners, named at the same time, include W. B. Powell, Barnwell, Savannah Valley district; Karl Floyd, Florence, Pee Dee district; and J. A. Blakely and Sons, Greenville, Piedmont district. Each received \$200 in cash and a silver goblet. The selections were made on the basis of wise land use, adequate seasonal forage, effective use of plant food, quality pasture, hay and silage, and good grassland management.

## Books on Fertilizers And Their Use

### MANUAL ON FERTILIZER MANUFACTURE—Second Edition

Vincent Sauchelli

A complete up-to-date revision of this well known book, that reviews in simple, everyday language the processes of manufacture of superphosphates, of ammoniation, and the formulation and preparation of mixed fertilizers. Indispensable to fertilizer plant supervisors and operators, and a valuable aid to research men and teachers. New chapters added: on plant nutrition, mixed fertilizers, ammoniation, granulation, revised and brought up-to-date. 80 tables of practical information ..... \$4.50

### SOIL FERTILITY AND FERTILIZERS (1956)

Samuel L. Tisdale and Werner L. Nelson

An advanced college text, for juniors and seniors, following backgrounding course in soils. Covers elements required in plant nutrition, their role in plant growth, and the soil reactions to these nutrients. Several chapters on manufacture, properties and agronomic value of fertilizers and fertilizer materials. Latter part covers soil fertility evaluation and use of fertilizers in sound management program. 430 pages, cloth bound ..... \$7.75

### PLANT REGULATORS IN AGRICULTURE

Dr. Harold B. Tukey

Published September, 1954. A text book giving background material for county agents, farmers, citrus growers, nurserymen, gardeners; providing fundamentals and general principles; covers encouragement of roots by plant regulators, control of flowering and fruit setting, parthenocarp, abscission, prevention of preharvest fruit drop, delaying foliation and blossoming, maturing and ripening, inhibition of sprouting and weed control. Brings together specialized knowledge of 17 authorities in the field, with two chapters written by Dr. Tukey, head of department of horticulture at Michigan State College. 269 pages ..... \$5.50

### THE CARE AND FEEDING OF GARDEN PLANTS

Published jointly by the American Society for Horticultural Science and the National Fertilizer Association.

An entirely new, one-of-a-kind book. It is designed to acquaint readers with nutritional deficiency symptoms or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, garden vegetables, and cane and tree fruits. It stresses plant "feeding," or "what makes plants grow." Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 300 pages of text and illustrations including 37 pages in full color ..... \$3.00

### PHOSPHATES IN AGRICULTURE

Dr. Vincent Sauchelli

A valuable book for the fertilizer salesman, agricultural teacher, farmer, fertilizer agent and county agent. Deals with rock phosphate versus superphosphate and colloidal phosphate, with the origin of phosphorus, the mining and processing of the phosphate rock, granulation of superphosphates, and fixation of phosphates in the soil, losses of phosphorus and replenishments, phosphorus in nutrition, radioactive phosphorus, basic slag, fused and sintered phosphates and TVA research data on phosphates from field tests in 13 states. 176 pages and well illustrated ..... \$2.75

### ECONOMIC AND TECHNICAL ANALYSIS OF FERTILIZER INNOVATIONS AND RESOURCE USE

By E. L. Baum, Earl Heady, John Pesek and Clifford Hildreth.

This book is the outgrowth of seminar sessions sponsored by TVA in 1956. Part I—Physical and Economic Aspects of Water Solubility in Fertilizers. Part II—Examination of Liquid Fertilizers and Related Marketing Problem. Part III—Methodological Procedures in the Study of Agronomic and Economic Efficiency in Rate of Application, Nutrient Ratios and Farm Use of Fertilizers. Part IV—Farm Planning Procedures for Optimum Resource Use. Part V—Agricultural Policy Implications of Technological Change. It presents new methodological techniques for more efficient handling of research problems related to fertilizers and provides more meaningful answers to problems of practical application ..... \$3.50

### HUNGER SIGNS IN CROPS—Second Edition

A symposium—published jointly by the American Society of Agronomy and the National Fertilizer Association.

A comprehensive study of nutrient-deficiency symptoms in crops compiled by 19 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color ..... \$4.50

### USING COMMERCIAL FERTILIZER (1952)

Malcolm H. McVickar

Dr. McVickar is chief agronomist of the National Fertilizer Assn. The book deals specifically with commercial fertilizer, how it is produced and how to use it. It is non-technical. It includes chapters on how to measure fertility of soils, secondary and trade-element plant foods. 208 pages, 106 illustrations, cloth bound ..... \$3.00

### COMMERCIAL FERTILIZERS, Their Sources and Use—Fifth Edition (1955)

Gilbeart H. Collings

Based upon the author's practical experience as an experiment station agronomist and teacher, and incorporating information on recent developments by agronomists, chemists, engineers and fertilizer manufacturers. Authoritative on problems concerning commercial fertilizers and their use in gaining larger yields. 160 illustrations, 522 pages ..... \$8.00

### APPROVED PRACTICES IN PASTURE MANAGEMENT (1956)

M. H. McVikar, Ph.D.

Outlines clearly and concisely how to have productive pastures to furnish high-quality forage for livestock, economically and efficiently. Written for grassland farmers. Covers the important activities associated with establishment, management and efficient use of pastures as grazing lands or as a source of fine winter feed for livestock. It is as specific as possible for all U.S. pasture areas. Twenty chapters, 256 pages, illustrated ..... \$2.40

### MANURES AND FERTILIZERS

A survey by the Ministry of Agriculture and Fisheries, dealing with soil analysis, inorganic fertilizers, waste organic substances and principles of manuring. In language to give the farmer basic principles of increasing soil fertility by the application of natural organic manures and synthetic inorganic fertilizers. Many important tables on quantitative data ..... \$2.50

## Order From Croplife

Reader Service Department  
P.O. Box 67  
Minneapolis 1, Minnesota

(enclose remittance)



## NAC MEETING

(Continued from page 1)

ment if the procedures and principles were more closely followed. The government agencies involved have indicated their willingness to review these matters with our industry and to seek a mutually satisfactory solution."

Mr. Hatch then reviewed the changes in association operations taken as a result of recommendations made at the spring convention: Formation of an executive committee, maintaining better liaison between committees and the board, the establishing of a single class of membership, and setting a new policy of expanding association assistance on local legislative problems.

"If our industry is to grow and prosper we must have a strong organization equipped to serve efficiently all our members on both national

and local problems," the speaker concluded. "I'm confident you recognize the need and will support the effort," Mr. Hatch said.

A rapidly expanding demand for farm products in the foreseeable future was predicted by Dr. Vergil D. Reed, economist for J. Walter Thompson Co., New York, in a discussion, "Our Economy and Your Farm Market," at the opening session.

"Our rapidly growing population, increasing purchasing power, urbanization and suburbanization, better transportation and growing industrial facilities mean an expanding market for agricultural chemicals," Dr. Reed stated.

Dr. Reed said that the demand for farm products will be at least 40% greater in 1975 than it was in

1950. Most of the increased production necessary to meet the demand will come from "greater productivity through further mechanization and better methods" on the farm, he added.

Yields per acre as well as per man hour will increase considerably, he declared, making it unnecessary to expand acreage under cultivation appreciably. An increase in productivity of around 85% by 1975 is technically possible and entirely feasible, Dr. Reed said.

A number of striking changes are going on in your farm market, Dr. Reed declared. There are around 4.8 million farms with total cash receipts of about \$30 billion annually. Surprisingly enough, half of farm income comes from non-farm sources, he pointed out. We've heard a lot about the decline of farm income over the past few years, he said, while there has been amazing reticence about the fact that total incomes of those farms have been and still are increasing.

Specialization, both geographically and by crops, is increasing, Dr. Reed said. Farming is rapidly becoming a commercial undertaking rather than merely a way of living. The ratio is about three to one commercial farms versus part-time or residential farms. These commercial farms account for about 97% of the value of farm products sold. Of commercial farms 80% bought gasoline or other petroleum products; 70% bought fertilizer; 70% bought feed; 60% hired machinery, and a little less than 60% hired labor.

Our economy is so strong, vital and dynamic that it has grown miraculously in spite of many mistakes by government, management, farmer and labor alike, Dr. Reed concluded. The chemical industry was a very skinny runt at the beginning of the century, but its growth since World War I has been phenomenal and today it is a very dynamic, healthy adolescent, consistently outgrowing most other industries. How to grow with America is largely a matter of knowing how America will grow and change, then keeping a step ahead of the tide. Yours should be a great tomorrow, he concluded.

Roswell Garst, partner in the firm of Garst & Thomas Hybrid Corn Co., Coon Rapids, Iowa, told the group that he would like to be optimistic in looking into the future of the pesticide business, but declared that the situation calls for some sobering appraisal. He agreed that the population increases in the U.S. have been phenomenal during the past few years, and granted that they will continue to set records in the years ahead. In fact, he predicted, the last half of the 20th century is likely to see the population of the U.S. doubled.

Despite this tremendous number of people to be fed, Mr. Garst said, agricultural production is right now 10 to 15 years ahead of the population increase. "Agricultural production has grown at twice the rate that population has during the past 10 years or so," he said. "We can produce much more than the U.S. knows how to eat," he went on, and the surpluses caused by this continually-growing production are having a depressing effect on the farm income.

Mr. Garst reminded the pesticide manufacturers and salesmen that "it is important for the agricultural chemicals industry to realize what a stake it has in the farmers' prosperity. 'Don't take the predictions of greater population numbers too seriously,' he warned, adding that it will be a long time before population catches up with agricultural production.

The Iowa dealer made a plea that the U.S. surplus food be exported to areas of the world where food supplies are at a minimum and where sufficient amounts of protein and fats are unknown in the present diets. Taking India and China as an exam-

ple, Mr. Garst said that the some 600 million persons in these lands could certainly form a market to absorb the excess foods raised in the U.S.

Unless something is done to reduce surpluses, Mr. Garst said, the fertilizer and pesticide industries will feel the pinch of the farmer who is forced to market his corn at 75¢ bu. when it costs him that much more to produce it. "Not many farmers will purchase insecticides to keep the corn borer from damaging a crop like that," he told the group.

Mr. Garst urged the agricultural chemical industry to consider aiding the farmer in marketing his produce, stating that if farm prices fall, the effects will be immediately felt by the trade.

William H. Prigmore, assistant general manager, Eastern States Farmers' Exchange, Inc., West Springfield, Mass., described the operations of his company as related to its policies concerning credit. He said that his cooperative, operating throughout New England and with plants and distribution points in a number of other areas, did a business of some \$86 million last year, working exclusively through its dealer setup.

Mr. Prigmore emphasized that farmers dealing with the co-op pay cash for their purchases because they have been trained to do so. He said that there is but one price, the same to all, and no deviation is made from published figure. The only alternative to a "cash on the barrel head" policy is that of allowing a seven-day time between delivery and payment.

To assure adherence to this policy, the co-op charges a 2% penalty on all accounts that run over the seven-day period. "As a result of this firm policy, the company lost only \$924 in uncollectable items, but this was more than offset by an income of \$11,000 from penalties on overdue payments," he explained.

Mr. Prigmore named a number of factors which he said encouraged the farmers to pay cash for the goods they buy. In the first place, he said, we offer the buyer good service in the form of convenient locations to buy, parking space, etc., a program of education, and uniform pricing. He said that his organization keeps in mind that the farmer is an independent business man, and that this concept is also true at the distributor level.

### Drouth Broken, But More Rain Needed In Northeast States

BOSTON—While rain has checked the eastern Massachusetts drouth, worst in 70 years, "much more rain is needed for storage and subsoil requirements."

This was revealed in a preliminary summary for August issued by the Weather Bureau office in Boston. The report also showed the month will go into the records as the coldest August in Boston in 11 years with temperatures averaging more than two degrees below normal.

"Soil moisture and water supplies are generally adequate for present needs," the Weather Bureau said. The 0.94 inch of soaking rains Aug. 25-26, accounted for most of the month's total rainfall of 1.71 inches. The total rainfall was only a little more than half the normal of 3.23 inches for a Boston August. For the year, the first eight months brought a total of only 18.57 inches, against a normal through August of 26.22.

Compared with the normal of 10 days with measurable rain in August, the month of August produced only seven. The Weather Bureau in its weekly weather and crop bulletins said: "Moisture supplies are now about uniformly adequate for current crop needs throughout the area." The report applied to Massachusetts, New Hampshire, Maine and Vermont.



## Your BEEF UP, FALL AND WINTER PROFITS

You—and your customers—can make more money this year on fall and winter pastures. Pass along these facts and you can both cash in!

### DIXIE IS THE BEST NITROGEN BUY BECAUSE—

#### DIXIE PAYS OFF:

In big yields of protein-enriched forage.  
In longer periods of fall and winter grazing.  
In cheaper production of beef, milk and feed.

#### DIXIE'S DOUBLE BARRELED:

DIXIE gives two growpower boosts, timed to produce the fastest, lushest and most dependable growth.

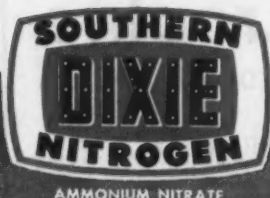
**BARREL #1** Nitrate Nitrogen for quickest and biggest growth gains.

**BARREL #2** Another boost of nitrate Nitrogen growpower—beginning in about two weeks as it converts from the slower-acting ammonia form.

#### DIXIE'S LOW COST:

DIXIE is the farmer's cheapest source of solid nitrogen. He gets, for the same money, up to 60% more actual nitrogen from DIXIE than from nitrate of soda.

This fall, stock and sell the nitrogen that's being pre-sold for you. The nitrogen that's



MADE IN DIXIE—  
FOR DIXIE FARMERS

SOUTHERN NITROGEN  
CO., INC.  
P. O. Box 246  
SAVANNAH, GEORGIA



IT'S DOUBLE BARRELED





Jack V. Vernon

## Jack V. Vernon Elected New President of NAC

SPRING LAKE, N.J.—Jack V. Vernon, president of the Niagara Chemical Division of the Food Machinery & Chemical Corp., Middleport, N.Y., was elected president of the National Agricultural Chemicals Assn. at its annual convention here Sept. 4-6. He succeeds Fred W. Hatch, manager of the Agricultural Chemicals Division of Shell Chemical Corp., New York.

The new vice president of NAC is Charles H. Sommer, Monsanto Chemical Co., St. Louis. Lea S. Hitchner continues as the executive secretary. New board members are George R. Ferguson, president of Geigy Agricultural Chemicals, division of Geigy Chemical Corp., Ardsley, N.Y.; John O. Logan, vice president and general manager, Industrial Chemical Division, Olin Mathieson Chemical Corp., Baltimore, and Warren H. Moyer, Chipman Chemical Co., Inc., Bound Brook, N.J.

### TRADE GROUP OFFICER

SAN FRANCISCO—Charles Jackson of the Stauffer Chemical Co., San Francisco, was named treasurer of the Junior World Trade Assn., an affiliate organization of the San Francisco Chamber of Commerce. The organization is devoted to the promotion of international trade and the recently built World Trade Center in the Ferry Building.

### NPFI STUDY

(Continued from page 1)

randomized in accordance with statistical procedures. Both granulated and powdered fertilizers are involved.

In the next phase the selected bags will each be sampled by means of the three most commonly used sampling tubes. The chemical control offices of New Jersey, Virginia and South Carolina, cooperating in this study, each will have one of its staff inspectors sample the bags. One of the purposes is to detect and measure differences that result from the use of different sampling instruments and to determine whether the inspectors have personal biases which could influence the sampling results.

The sample cores properly identified then will be sent to the three laboratories for chemical and sieve analyses. The results will be analyzed statistically to determine the biases, if any, of each laboratory for particular tests and the variation between cores from the same bag and in comparison with samples obtained by riffling the entire bag. Many other determinations will be made from the several analyses.

## NAC STAFF REPORT

(Continued from page 1)

an atmosphere of public opinion favorable to the expanded use of agricultural chemicals, (2) to work with and develop a mutual understanding with regulatory agencies and legislative bodies, and (3) to minimize adverse criticisms of the industry.

Mr. Noone said that the Miller Amendment is not now as active an issue as it was a year ago, but the industry has no shortage of important matters, legislative-wise, to look after.

The "chemicals in food" issue is still an active one, he said, and he reported that some 11 bills on this subject have been introduced in various legislatures this year.

Three objectives were named in connection with these bills:

1. To avoid dual jurisdiction over pesticide chemicals now under the Miller Amendment.

2. To keep agricultural chemicals from being regulated as food additives or as foods.

3. To ensure that agricultural chemicals are regulated only by one section of the Food, Drug and Cosmetic Act, rather than by two or three different sections.

Mr. Miller told of efforts being made by the association to counteract unfavorable publicity against the activities of the industry. He showed slides on a screen picturing clippings from various publications, apparently designed to frighten the public.

Against this, he also showed numerous favorable items which have also appeared in various places, giving readers a sensible viewpoint of what the industry is doing and how the public is being protected by existing laws in every state.

He outlined some of the programs being conducted by NAC in general publicity, informing consumer groups, the safety program, doctors' information program, youth program, bankers' program, grower informa-

tion program and product promotion and market development.

Miss Grobe told of the association's work with women's groups not only in Washington, D.C., but in other sections of the country as well. She said that professional women's clubs and other groups are being contacted and that the work is proving effective in counteracting some of the not-so-factual impressions gained from many other sources.

Mr. Dreessen presented statistics on the radio and television programs sponsored by NAC for educational purposes. He said that weed control along highways is a big market potential for the industry, and that park managers and others in similar positions have been contacted with information to encourage them to make use of chemicals for jobs formerly done by labor.

### AGRONOMIST NAMED

AMHERST, MASS.—Joseph Troll has joined the agronomy staff of the University of Massachusetts.

## IF A BAG IS "JUST A BAG"

*why do so many thousands of buyers insist upon*

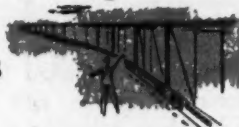
# CHASE

Do a quick buyer survey



among the men who last

year purchased millions of Chase bags



and you'll hear

several good reasons.



For instance, the integrity of an industry

pioneer that stands behind each order, be it experimental run or

multiple-carload.



Sound printing techniques that mean accuracy,

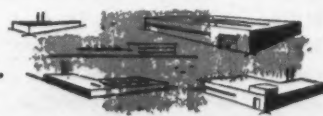
uniformity, brand appeal . . . as in this

Multiwall Paper Bag, for example.

Unbiased advice in recommending the best

bag for you because "Chase Makes 'Em All",

in 14 centrally located plants.



Which Chase advantage is most important to you?

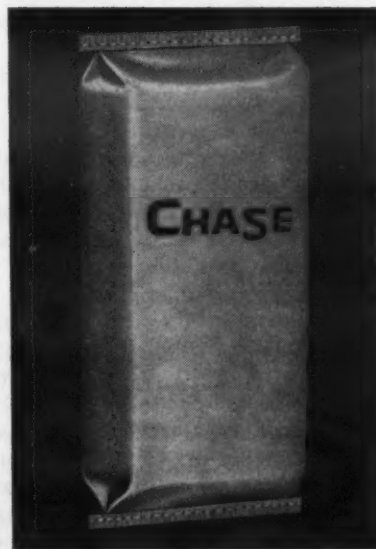
Paper, Open-Mesh or Mesh Window, Burlap, Cotton or Polyethylene . . . Whatever your need in bags, One Call and You Can Order Any or All . . . at Chase!

## CHASE BAG COMPANY

General Sales Office: 309 W. Jackson Blvd., Chicago 6, Illinois

110 Years of better bag making

32 Coast-to-Coast Bag Plants and Sales Offices—A Nationwide Staff of Bag Specialists





# Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Southern states.

## Study Shows Income From 100 Acres or Less Too Low

Is there any accurate measurement by which one can determine how large a farm should be for a reasonable income for its owners? The University of Minnesota has made a study of this question and here are some of the findings announced by professors S. A. Engene and T. R. Nodland. They say that the farm should be big enough so that the farmer takes in about three times as much in total sales as the family needs for personal and living expenses.

This conclusion was reached on the basis of thousands of records kept by Minnesota farmers in recent years. Reports indicated that in the five-year period of 1950-54, inclusive, about two-thirds of each farmer's income was used for farm expenses.

The researchers found it was difficult to earn a gross income of \$6,000 a year, which would mean a net income of around \$2,000, on less than 100 acres of cropland. This formula is likely to continue in the future, it was observed.

In Minnesota, they found, farms averaging between 50 and 99 acres of cropland had less than \$5,000 total income in 1954, but as the number of acres increased, so did the gross income.

One study, conducted over the ten year period of 1945-54, showed that farmers produced as much gross income on 100 acres as other farmers did on 145 acres, but it took an extra 25% of labor to do it on the small farms. The result is that income per man was higher on large farms.

The professors concluded that, according to these trends, it is likely that farmers with 100 acres or less of cropland will continue to leave the agricultural scene. Some, of course, will find other employment nearby and may continue working their farms on a part-time basis, or merely utilize them as places to live.

## Hard Selling Only Way to Gain from Farm Programs

With activation of the Great Plains Conservation Program, some 221 counties in ten states are to receive assistance toward minimizing climatic hazards and protection of lands from erosion and deterioration. The U.S. Department of Agriculture has announced that a Congressional appropriation of \$10 million for the first year's operations became available recently.

Ezra Taft Benson, secretary of agriculture, says that the new program supplements existing programs and activities, and does not replace any of them. Neither does it establish any new agency. Administrative responsibility has been assigned to the Soil Conservation Service, and will be carried out in cooperation with local and state governments, the Great Plains Agricultural Council, soil conservation districts, and farm organizations.

The significance of all this as related to its effect on the pesticide and fertilizer business for the next year seems to lie in some of the objectives of the program as outlined by USDA. These include establishing permanent plant cover, improving range cover, and controlling brush, all of which would call for either fertilizers or pesticides for accomplishment.

Many of the other practices outlined are largely of engineering nature, such as building dams, waterways, installing pipe and fencing and digging wells; but, at the same time, such activities should help to stimulate overall improvements which could result in more chemical sales.

It is emphasized by USDA that the new program does not cancel other contracts or agreements which may be in effect. The new program

is a supplement to, rather than a replacement of, current plans, such as the soil bank.

States affected by the new program include Colorado, with 27 counties; Kansas, with 31; Montana, with 5; Nebraska, with 35; New Mexico, with 17; North Dakota, with 6; Oklahoma, with 14; South Dakota, with 17; Texas, with 64; and Wyoming, with 5.

However, there is a slight catch to the rosy picture. The pesticide industry will have to do a major job of education and selling to gain from the government program setup, for there is no apparent way in which enforcement of these rules is to be handled. Because of this, each farmer will be inclined to do the least he can and still reap the benefits of the conservation program. If he is to make use of herbicides or other chemical products for the maintenance of his set-aside acres, it will be because someone urges him to do so.

The "someone" is the pesticide trade itself. The farmer must be reminded of his obligation to carry out the provisions of government contracts, even though he won't go to jail if he declines. Dealers should be alerted to the situation and urged to push sales of materials that fit in with the maintenance phases of the government contracts.

Those doing business in the Great Plains states named above might well make serious efforts to study the local situation and see if pesticide volume might not be increased.

## Larkspur Control Would Stop Severe Cattle Loss

Because of a wetter-than-usual summer, the range lands in Wyoming and other western states have been well dotted with larkspur, the weed known to cattle men as "the deadliest killer on the range." Authorities in Wyoming have predicted the loss of 500 head of cattle in that state alone this year because of this weed.

Farmers and ranchers are often complacent about larkspur during dry years when it sometimes does not show up, and many get the impression that the plant has died out. But along comes a wet season and the ranges are once more well populated with the plant which seems to have a lethal attraction to cattle.

No one knows just what odor, appearance, or taste is possessed by the plant that makes it so tasty to bovines. Cattle will often ignore lush clumps of grass to get at larkspur, whereas horses and mules will seldom touch it. In experiments, forced feeding of the plant to sheep failed to produce symptoms of poisoning. Research is under way to find out why the cattle have such a hunger for the plant, but so far the answers are not known.

A. O. Beath, University of Wyoming professor who has studied the larkspur situation for many years, says that a lethal dose of young green leaves of the plant is from 1.6 to 2.6 lb. per hundredweight of the animal. Of the two major species of larkspur, the taller one is said to be twice as toxic as the shorter one.

In discussing the situation, Mr. Beath expressed doubt that the weed is increasing in its numbers. "I haven't noticed much change in the 40 years I have been in Wyoming," he said. "But I do know there will always be losses until the ranchers realize the danger of this plant. Only when an outbreak becomes serious will ranchers take action. Then, in many cases, it is too late."

Actually, with effective weed killers available, control of this poisonous weed should be a relatively small problem. Costs could be considerable and still not be too much if a spray program would save the loss of several hundred valuable animals.



Croplife's Home Office

## Croplife



Member of Business Publications Audit

Member of National Business Publications

CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG

Editor

DONALD NETH

Managing Editor

EDITORIAL STAFF—John Cipperly, Washington Correspondent; George E. Swarbrick, Canadian and Overseas Editor; Emmet J. Hoffman, Marketing Editor; Walter C. Smith, Research Director.

ADVERTISING STAFF—Wilfred E. Lingren, Advertising Director; Carl R. Vetter, Advertising Production Manager; Bruce A. Kirkpatrick, Assistant Advertising Production Manager.

BUSINESS STAFF—Martin E. Newell, Chairman of the Board of Directors; Milton B. Kihlstrum, President and Treasurer; Wilfred E. Lingren, Executive Vice President; Don E. Rogers, Vice President; Paul L. Dittmore, Vice President; Donald Neth, Secretary; Thomas A. Griffin, Business Manager; Edwin J. Hartwick, Circulation Manager; James G. Patridge, Assistant Treasurer; Richard Ostlund, Office Manager; Walter O. Buchkosky, Production Superintendent.

### BRANCH OFFICES

EASTERN STATES—Paul L. Dittmore, Eastern Advertising Sales Manager; James W. Miller and George W. Potts, Advertising Sales Representatives; Suite 3214, 551 Fifth Ave., New York 17, N.Y. (Tel. Murray Hill 2-2185).

CENTRAL STATES—Don E. Rogers, Manager; Henry S. French, Assistant Manager; 2272 Board of Trade Bldg., 141 W. Jackson Blvd., Chicago 4, Ill. (Tel. Harrison 7-6782).

SOUTHWEST—Martin E. Newell, Manager; Thomas E. Letch, Assistant Manager; 612 Board of Trade Bldg., Kansas City 5, Mo. (Tel. Victor 2-1350).

NORTHWEST—Paul A. Anderson, Advertising Sales Representative, P.O. Box 67, Minneapolis 1, Minn. (Tel. Federal 2-0575).

WASHINGTON CORRESPONDENT—John Cipperly, 604 Hibbs Bldg., Washington, D. C. (Tel. Republic 7-8534).

EXECUTIVE AND EDITORIAL OFFICES—2501 Wayzata Blvd., Minneapolis, Minn. Tel. Federal 2-0575. Bell System Teletype Service at Minneapolis (MP 179), Kansas City (KC 295), Chicago (CG 340), New York (NY 1-2452), Washington, D.C. (WA 82).

Published by  
THE MILLER PUBLISHING CO.

2501 Wayzata Blvd., Minneapolis, Minn.  
(Address Mails to P. O. Box 67, Minneapolis 1, Minn.)

Associated Publications—THE NORTHWESTERN MILLER, THE AMERICAN BAKER, FEEDSTUFFS, MILLING PRODUCTION



# MEETING MEMOS

Sept. 11—Central California Agricultural Forum, Bakersfield Inn, Bakersfield, Cal.  
Sept. 25—South Carolina Plant Food Educational Society, Eighth Annual Convention, Clemson House, Clemson, S.C.  
Oct. 9-10—Shell Nematology Workshop, Hotel Kingsway, 108 N. Kingshighway, St. Louis, Mo.  
Oct. 9-11—Florida Fruit & Vegetable Assn., 14th Annual Convention, Hotel Fontainebleau, Miami Beach, Fla.  
Nov. 25—Oklahoma Fertilizer Dealers Conference, Oklahoma State University, Stillwater, Okla.  
Nov. 26—Oklahoma Soils and Crops Conference, Oklahoma State University, Stillwater, Okla.  
Dec. 5—Second Annual New Mexico Irrigation Exposition, Eastern New Mexico Fairgrounds, Roswell, N.M.; Al W. Woodburn and William Harr, c/o Southwest Public Service Co., Roswell, co-chairmen.

EDITOR'S NOTE—The listings above are appearing in this column for the first time this week.

Sept. 10—Minnesota Group of Middle West Soil Improvement Committee Conference, Soils Building, University of Minnesota Farm Campus, St. Paul.  
Sept. 24-25—New England Fertilizer Conference, Bald Peak, Colony Club, Melvin Village, N.H.  
Oct. 2-4—Eleventh Annual Beltwide Cotton Mechanization Conference, Shreveport, La.  
Oct. 3—New Jersey Fertilizer Conference, Rutgers University, New Brunswick, N.J.  
Oct. 3-5—Pacific Northwest Plant Food Assn., Annual Convention, Sun Valley, Idaho, Leon S. Jackson, Lewis Bldg., Portland 4, Ore., Secretary.  
Oct. 7-8—Western Agricultural Chemicals Assn., Fall Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.  
Oct. 14—Sixth Annual Sales Clinic of the Salesmen's Assn., American Chemical Society, Hotel Roosevelt, New York.  
Oct. 15—Association of Official Agricultural Chemists, 71st Annual Meeting, Washington, D.C., Dr. William Horwitz, Box 540, Benjamin Franklin Station, Washington, D.C., secretary-treasurer.  
Oct. 17—Conference on Chemical Control Procedures for Industry Chemical Control Analysts, Shoreham Hotel, Washington, D.C. Sponsored by National Plant Food Institute.

Oct. 18—Association of American Fertilizer Control Officials (States Relations Committee, 8 p.m. Oct. 17), Shoreham Hotel, Washington, D.C., B. D. Cloaninger, Box 392, Clemson, S.C., Secretary-Treasurer.  
Oct. 21-22—Fertilizer Section, National Safety Congress, LaSalle Hotel, Chicago.  
Oct. 29—Grassland Farming Conference, Rutgers University, New Brunswick, N.J.  
Oct. 29-30—Seventh Annual Northwest Garden Supply Trade Show of Oregon Feed & Seed Dealers Assn., Portland, Ore. Masonic Temple.  
Oct. 29-31—Entomological Society of Canada and Entomological Society of Alberta, Annual Meetings, Lethbridge, Alberta.  
Oct. 31—19th annual meeting, Middle West Soil Improvement Committee, Sherman Hotel, Chicago. Z. H. Beers, 228 N. LaSalle St., Chicago, executive secretary.  
Oct. 31-Nov. 1—Second Annual Southern Fertilizer Conference and Second Annual Southern Soil Fertility Conference, Dinkler Plaza Hotel, Atlanta, Ga.  
Nov. 3-5—California Fertilizer Assn. 34th Annual Convention, St. Francis Hotel, San Francisco, Sidney H. Bierly, General Manager, 475 Huntington Drive, San Marino 9, Cal.  
Nov. 6-8—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.  
Nov. 13-15—National Aviation Trades Assn., Annual Convention, Hotel Adolphus, Dallas, Texas.  
Nov. 17-19—National Fertilizer Solutions Assn., Annual Convention, Netherland-Hilton Hotel, Cincinnati, Muriel F. Collie, 2217 Tribune Tower, Chicago 11, Ill.  
Nov. 18-20—Carolinas-Virginia Pesticide Formulators Assn., Carolina Hotel, Pinehurst, N.C. W. R. Peele, 516 S. Salisbury, Raleigh, N.C., secretary.  
Dec. 1-3—Southern Seedsmen's Assn., Jung Hotel, New Orleans.  
Dec. 2-5—Entomological Society of America, 5th Annual Meeting, Hotel Peabody, Memphis, Tenn., R. H. Nelson, 1530 P St., N.W., Washington 5, D.C., Executive Secretary.  
Dec. 2-5—Cotton States Branch, Entomological Society of America, 32nd Annual Meeting, Hotel Peabody, Memphis, Tenn., M. E. Merkl, Box 202, Leland, Miss., Secretary-Treasurer.  
Dec. 3-4—Iowa State College Fertilizer Manufacturer's Conference and Fertilizer Dealers' Short Course, Memorial Union, Iowa State College campus, Ames, Ia.

Dec. 8-12—Vegetable Growers Association of America convention, Jung Hotel, New Orleans, La.  
Dec. 9-12—Chemical Specialties Manufacturers Assn., Hollywood Beach Hotel, Hollywood, Fla.  
Dec. 10-12—North Central Weed Control Conference, 14th Annual Meeting, Hotel Savory, Des Moines, Iowa. Lyle A. Derscheid, agronomy department, South Dakota State College, Brookings, Program Chairman.  
Dec. 11-13—Agricultural Ammonia Institute, Seventh Annual Meeting, Hotel Marion, Little Rock, Ark., Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.  
Dec. 12-13—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Tenn.

1958

Jan. 7-8—Texas Fertilizer Conference, Texas A&M, College Station, Texas.  
Jan. 13-15, 1958—Weed Society of America and Southern Weed Conference, joint meeting, Peabody Hotel, Memphis, Tenn.  
Jan. 21-23—California Weed Conference, San Jose, Cal.  
Feb. 13-14—Agronomists-Industry Joint Meeting, Edgewater Beach Hotel, Chicago, sponsored by the Middle West Soil Improvement Committee, Z. H. Beers, 228 N. LaSalle St., Chicago 1, Ill., Executive Secretary.  
Feb. 20-22—Nitrogen Conference, University of Minnesota, St. Paul. M. W. Mawhinney, Smith-Douglass Co., Albert Lea, Minn., Chairman.  
March 4-5—Western Cotton Production Conference, Hotel Cortez, El Paso, Texas, Conference Sponsored by the National Cotton Council and the Five State Cotton Growers Assn.  
June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.  
June 25-27—Pacific Branch, Entomo-

## Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.  
Rates: 15¢ per word; minimum charge \$2.25. Situations wanted, 10¢ a word; \$1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Advertisements of new machinery, products and services accepted for insertion at minimum rate of \$10 per column inch. All Want Ads cash with order.

For Results . . .

## Croplife

. . . Want Ads

logical Society of America, San Diego, Cal.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

### SOIL STUDY GRANT

GAINESVILLE, FLA.—A grant of \$9,000 from the Rockefeller Foundation for research in tropical soils has been announced by J. Wayne Reitz, president of the University of Florida. The money will be used for salary and travel expense of Hugh Popenoe in connection with his studies of tropical soils under conditions of shifting cultivation.

### LOW PRICES!

#### Pharmaceuticals - Chemicals

- Trichloroacetic Acid U.S.P.
- Dextrose C.P. Anhydrous
- Ascorbic Acid U.S.P.
- Nicotine Sulphate
- Calcium Caseinate
- Folic Acid U.S.P.
- Saccharin U.S.P.
- Sulfate Drugs
- Salicylates

CONRAY PRODUCTS CO. DIV.

129 Pearl Street New York 5, N. Y.

## INDEX OF ADVERTISERS

The index of advertisers is provided as a service to readers and advertisers. The publisher does not assume any liability for errors or omissions.

Abbott Laboratories	Kraft Bag Corp.
Allied Chemical & Dye Corp., Nitrogen Division	Markley Laboratories
American Potash & Chemical Corp.	Merck & Co.
Anco Manufacturing & Supply Co.	Meredith Pub. Co.
Ashcraft-Wilkinson Co.	Wilson & Geo. Meyer & Co.
Atkins, Kroll & Co.	Miller Publishing Co., The
Baughman Manufacturing Co., Inc.	Minerals & Chemicals Corp.
Bemis Bro. Bag Co.	Mississippi River Chemical Co.
Blue, John, Co.	Monsanto Chemical Co.
Bonneville, Ltd.	National Potash Co.
Bradley & Baker	Naugatuck Chemical Div., U. S. Rubber Co.
Broyhill Company	Niagara Chemical Division, Food Machinery & Chemical Corp.
Burkhardt Larsen Co.	Nitroform Agricultural Chemicals, Inc.
Chase Bag Co.	Nitrogen Div., Allied Chemical & Dye Corporation
Chemagro Corp.	Northwest Nitro-Chemicals, Ltd.
Chemical & Industrial Corp.	Olin Mathieson Chemical Corp.
Chemical Insecticides Corp.	Pacific Coast Borax Co.
Chemical Service Corp.	Penick, S. B., & Co.
Clover Chemical Co.	Pennsalt of Washington Div. of Pennsalt Chemicals Corp.
College Science Publishers	Phillips Chemical Co.
Collier Carbon & Chemical Corp.	Potash Company of America
Commercial Solvents Corp.	Pringle, Ashmead F., Jr.
Conray Products Co. Division	Private Brands, Inc.
Consolidated Mining & Smelting Co.	Raymond Bag Co.
Dallas Tank Mfg. Co.	Riverdale Chemical Co.
Davison Chemical Co.	Shell Chemical Corp.
Deere & Co., Grand River Chem. Div.	Simonsen Mfg. Co.
Dempster Mill Mfg. Co.	Sinclair Chemicals, Inc.
Dow Chemical Co.	Smith-Rowland Co., Inc.
E. I. Du Pont de Nemours & Co., Inc.	Sohio Chemical Co.
Duval Sulphur & Potash Co.	Southern Nitrogen Co.
Eastern States Chemical Corp.	Spencer Chemical Co.
Emulsol Chemical Corp.	Spraying Systems Co.
Flexo Products, Inc.	Stewart-Warner Corp.
Frontier Chemical Co.	Successful Farming
Gates Rubber Co.	Tennessee Corp.
Grace Chemical Co.	Thomas Alabama Kaolin Co.
Grand River Chemical Div. of Deere & Co.	Union Bag-Camp Paper Corp.
Harshaw Chemical Co.	U. S. Phosphoric Products Division
Hayes & Stolz	U. S. Potash Co.
Henderson Mfg. Co.	U. S. Rubber Co., Naugatuck Chem. Div.
Hercules Powder Co.	U. S. Steel Corp.
Hough, Frank H., Co.	Velsicol Chemical Corp.
Hypro Engineering Co.	
Industrial Fumigant Co.	
International Minerals & Chemical Corp.	
Johns-Manville Corp.	
Kent, Percy, Bag Co.	



there is only

1

NEWSPAPER



Serving the  
Agricultural Chemical  
Industry ...

Croplife is the weekly newspaper for all phases of the industry from the manufacturers of basic chemicals down the production and distribution chain through the retail dealers. Croplife reaches *all* the key men in the industry. These groups are reading Croplife:

- Fertilizer manufacturers, mixers and suppliers of fertilizer ingredients
- Formulators of Pesticides, Herbicides and other Farm Chemicals
- Retail Dealers selling fertilizer, farm chemicals and other farm supplies; Custom Sprayers, Pest Control Operators, and Nurserymen
- Farm Advisor Group—county agents, agriculture department officials, extension and experiment station personnel, soil conservation men, bankers and consultants

Croplife, with a publishing schedule every 168 hours, is reporting news to the industry while it's still news! A staff of 21 crack newsmen in key U.S. cities and backed by 100 special correspondents provides the stop-press coverage of the industry required by readers who make the command decisions.

Croplife's unique distribution plan permits advertising (1) on the national level to the manufacturing core of the industry, and (2) on the regional basis to the marketing segment of the market. Ask a Croplife representative to elaborate on this in terms of your product!

Your advertisement in Croplife will share the *impact* and *import* of Croplife as it reports weekly to the men who create action in the agricultural chemical field.

Croplife

...for richer<sup>sales</sup> fields

New York, 551 Fifth Ave.

Murray Hill 2-2185

Minneapolis, 2501 Wayzata Boulevard  
Federal 2-0575



Member of National  
Business Publications



Member of Business  
Publications Audit

Chicago, 2272 Board of Trade Bldg.  
Harrison 7-6782

Kansas City, 612 Board of Trade Bldg.  
Victor 2-1350